

FLORIDA HEALTH NOTES



VOLUME 63 NO. 1

JANUARY 1971

**Dog Flies, Rodents
and Mosquitoes**

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DOG FLIES, RODENTS and MOSQUITOES

There are many varieties of pests and insects in Florida. Some are merely annoying pests; others carry diseases; some pests have an adverse effect on the economy of the state. The Division of Health and Department of Health and Rehabilitative Services are concerned about some of these pests . . . especially dog flies, rodents and mosquitoes.

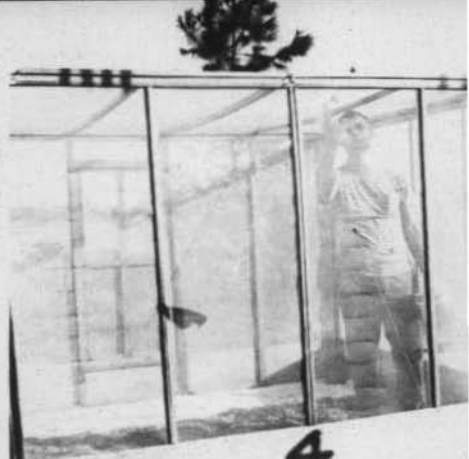
- It was a sunny September morning on the West Florida Beach. Miss Jones, who was on vacation from Alabama, was anticipating spending the day on the beach. She wanted to get a good sun tan before she went back to her office job.

"After all," she thought, "If you go to Florida, you are expected to come home with a good tan."

She spread a blanket on the sand. Suddenly she felt a sharp sting on her arm. She looked down and discovered a small fly which was quickly joined by a host of others. Swimmers and people along the beach were starting to slap the flies. Soon there were too many and the vacationers gave up, headed for their cars and left. Miss Jones went back to the motel room. The dog flies had taken over the deserted beach.

- The Smith family lived on the edge of a Florida city where they had a couple of hunting dogs and a few chickens in the backyard. They

SEEK AND DESTROY (opposite page) (5) Rodents are killed in their burrows by cyanide gas. (6) A bait station is serviced with "dinner" of poison bait for Mr. Rat and his family.



DOG FLY CONTROL —

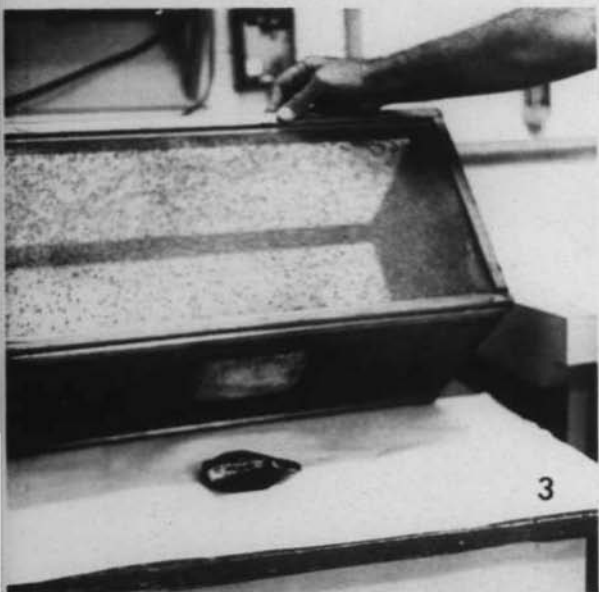
(Cover photo) Staff members of the West Florida Arthropod Research Laboratory search marine grass for dog fly larvae.

(1) Adult dog flies take shelter from the winds on the leeward side of these dunes of West Florida beaches. It is here the dog flies are a pest to humans.

(2) In the Laboratory insectary dog flies lay their eggs on damp pads placed beneath their cages.

(3) Dog flies that survive in breeding materials sprayed with chemicals are captured and counted.

(4) A "landing rate count" is the number of flies landing on the inspector's clothes in one minute.



found that rats were starting to chew into the bags of dog and chicken feed. They found holes gnawed in the walls and burrows under the house. One evening Mr. and Mrs. Smith heard their baby daughter screaming and they rushed into the bedroom to see a rat disappearing behind a dresser.

- Mr. and Mrs. Brown were sitting on the patio of their Florida home one evening. But they were soon driven indoors by annoying mosquitoes. The pests have been reduced in many areas of the state, but there are still many square miles of salt marshes, and many bird baths, tin cans, abandoned tires and ditches where mosquitoes still breed.

Dog flies, rats and mosquitoes have been around in Florida for a long time. Records show that they have existed since the earliest settlers. The pests exist today and if Florida wishes to grow, dog flies and rodents need to be curbed and mosquitoes need to be more closely controlled.

The Department of Health and Rehabilitative Services and its Division of Health are planning new programs in dog fly and rodents control and an expanded program in mosquito control. This issue of **Florida Health Notes** will tell you about the problems these pests create, of the methods used in controlling dog flies and rats, and of the new programs proposed by the Division of Health.

CONTROLLING THE DOG FLY

The problem of the dog fly is confined mostly to West Florida where its control is a matter of comfort and economy to the residents and tourists.

The blood-sucking insect, known as the dog fly, is the same as the stable fly that is commonly found around livestock and wildlife

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READY FOR ACTION—

Male and female dog flies are blood-sucking insects. Also known as the stable fly, they are similar in appearance to the common house-fly.



throughout the world. It is a relative of the tsetse fly of Africa — the insect that causes sleeping sickness. Although the pest has not been incriminated for carrying any disease in Florida, the stable fly does carry cattle diseases in other parts of the world.

In its normal environment, the dog fly is not considered a pest to man. But in certain geographical areas of the United States, it breeds in large numbers. When the fly population in these areas becomes concentrated, the dog fly causes havoc with man and livestock. The area that concerns us is West Florida — known as the Panhandle. The fly is also a problem to man along the Gulf Coast of Alabama, Mississippi and Louisiana; the coastal areas of New Jersey; the shores of Lakes Superior and Michigan; and some of the lakes of the Tennessee Valley Authority Project area.

The dog fly breeds prolifically in animal manure and in fermenting plant materials such as wet hay, grains and piles of marine grass that are deposited along shores of bays and lakes.

The dog fly has been a scourge of West Florida since the earliest history of the area. Old-time residents recall before the days of the fencing law of seeing range cattle rush to the bays and Gulf to submerge themselves and avoid the thousands of flies that tormented them.

The dog fly is most abundant in Florida from St. Marks River in Wakulla County to the Perdido River in Escambia County. Although the dog fly breeds the year around, the peak season starts in late August and runs through September and October. By early November the first frosts slow the breeding of the dog fly and the marine grasses of the bays have stopped growing.

However, this is the same time the businessmen of the Panhandle wish to extend their tourist season — past the Labor Day weekend. To do this they are promoting fishing tournaments and other activities. It seems that the thriving tourist business of the area is evidence that the dog fly needs to be controlled. A sudden swarm of these blood-sucking pests on the beaches can wreck a Labor Day weekend business and ruin many a tourist holiday.

The Life of the Dog Fly

The dog fly is quite similar to the common housefly. However, both the male and female of the dog fly are blood-sucking insects. Apparently they need the blood for food; but the female also needs the blood to develop her eggs.

The female lays her eggs in the damp grassy material deposited by waves high on the bay shores. If the grass has been on the shore for more than three weeks, the female does not consider it suitable for breeding.

From the eggs, the dog fly emerges into larvae. It then goes into the pupa stage before emerging as an adult. Development time from egg to adult fly in summer is 12 to 16 days. After it emerges, the fly's wings are wet and crumpled and it must crawl around on the ground or marine grass for a half hour or so until its wings are dry. Then it takes off looking for a blood meal. The dog fly is active only during daylight hours, resting on trees and shrubs during the night. It has been observed feeding on a specie of golden rod that grows on the dunes of West Florida. It is thought to suck nectar from the blossoms for energy.

The adult dog fly lives only about three weeks during the summer months. A female can lay hundreds of eggs during her lifetime. During the cooler months, the life cycle of the fly is extended up to two or three months.

Where Do the Flies Come From?

When the dog flies land on the beaches with their biting instruments ready, people wonder: Where do the dog flies come from? This legendary "mystery" about the dog fly in West Florida has been solved by research.

The flies have been in the area all of the time. Many people do not understand, or ignore the fact that flies breed in the marine grass that washes upon the shores of the bays — not on the beaches.

In the woodland areas away from the beaches — where the flies normally live — they are not concentrated. However, they are sensitive to the wind and when a northerly wind blows toward the beaches from inland, the flies take off and land on the beaches. They take shelter from the winds on the leeward side of the dunes. Some move to the boats and are taken offshore where they continue to bite. The flies normally do not concentrate in residential areas, but they may bite an occasional human and often bite dogs while enroute to the beaches.

The dog flies are usually on the beaches during the morning hours (when the wind is from the north) but frequently during the middle of the day, the thermal currents on the land pull the winds in from the Gulf and the flies leave as suddenly as they came. They may then move inland some 10 to 15 miles from the Gulf of Mexico.

Dog Fly Breeding

The dog fly normally breeds around farms, dairies, chicken ranches — anywhere there are livestock. It has been found breeding in the animal exhibits of the beach communities. In its normal ecological setting, the dog fly is not a pest to humans. Rarely does it find its way into the home. Investigators estimated that one modern chicken farm, where chickens were kept in cages, had over 489,000 dog fly larvae in the piles of chicken manure.

LONG-BLADED — Eel grass on the shores of fresh water lakes in West Florida is capable of breeding millions of dog flies.



In West Florida, the dog flies breed principally in the fermenting marine grass that has been washed onto the shores of the large bays by wind and waves. If conditions are right, the larvae may push themselves into the sandy soil beneath the piles of marine grass and here they go through the pupa stage and emerge as adults.

The grass grows on the bottom of the shallow bays and is broken loose by storm waves, shrimp trawlers and propellers of boats. It floats in "rafts" on the surface of the water until the action of the wind and tides wash the "rafts" ashore. Stormy weather, especially, will push the grass high on the shore and back into the coves of the bays where, unseen by humans, the dog flies breed uninterruptedly.

In addition to breeding along the shores of brackish waters of the bays, the dog flies have been found to breed in deposits of grass along the shores of fresh water areas of Deer Point Lake in Bay County, Wimico Lake of Gulf County, and along the fresh water canal that furnishes Port St. Joe and the St. Joseph Paper Company with drinking water. These places are noted for the long, slender eel grass that breaks off and floats ashore. Over a period of three weeks, over a thousand adult dog flies emerged from a sample of fermenting eel grass from Deer Point Lake that was three-feet square. At this ratio, one mile of eel grass, one foot wide could be capable of producing 1.7 million dog flies. Grass deposits on Deer Point Lake and Lake Wimico one year totaled 21 miles and were capable of producing millions of biting dog flies.

There are some 1,100 miles of bay shorelines between St. Marks and the Perdido Rivers. The area affected by the dog flies is about 6,000 square miles. Much of the area has the potential for breeding the pests.

The problem extends to a lesser degree southward along the Gulf of Mexico coast to Cedar Key, but many of the large bays in other parts of Florida do not support the types of marine grass that dog flies like. Also, the physical features of many bays are such that plant debris usually does not deposit on the shore in significant quantities. Natural barriers of mangroves and other marsh plants intercept the floating plants before they are deposited on the shores. Plant material that is submerged or floating on the water will not produce dog flies.

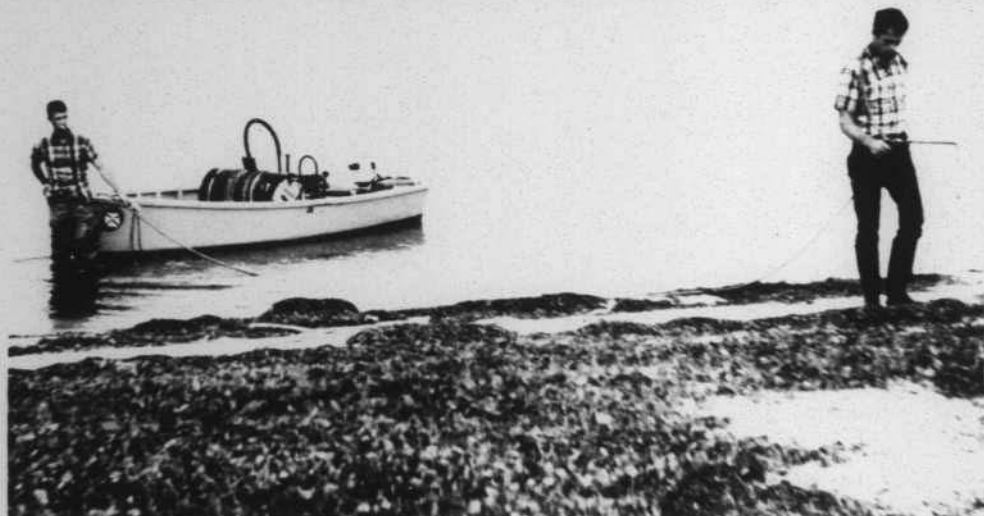
By the first of November, the marine grass stops growing and cool temperatures prolong the life cycle of the fly and the breeding slows down for the cooler months.

Control — Yesterday and Today

During World War II, the dog fly was such a problem that it seriously hampered training at the military bases in West Florida. The Federal Government moved in with a control program during 1942 financed entirely by federal money. The program extended over the eight-county area of the Gulf Coast.

An extensive and important public works program was carried out by the Federal Government — second only in scope and intensity to the salt marsh mosquito control program carried on in other parts of Florida. The procedure was to spray the seaweed deposits on the bay shore with massive volumes of creosote oil emulsion spray, saturating the entire masses of the breeding material. Up to 5,000 gallons of spray was required for each mile of grass deposits. The cost of the project was about \$150,000 per year.

DDT came along in 1944 and scientists of the Federal Government found that a very light surface application of the insecticide applied to the deposits of marine grass would kill adult flies as they emerged. This method was used in place of the massive creosote sprays during the remainder of the program and the cost was reduced to \$57,000 during 1945.



TESTING SPRAYS — A crew from the West Florida Arthropod Research Laboratory tests insecticides on marine grass washed up on the shores of a West Florida bay.

The federally-supported program ended in 1946 and the dog flies were left to breed unmolested until 1953 when the arthropod control districts were formed in the Panhandle.

The first mosquito control district of the area was formed in Panama City Beach (as the Gulf Mosquito Control District) but unfortunately it did not include control of most of the areas where the dog flies were breeding. The District only covered the political boundaries of the beach community.

The Bay County Board of Commissioners and other coastal counties of the Panhandle followed with mosquito control programs. There are now 10 control programs in the eight counties — two each in Bay and Walton Counties, and one each in Escambia, Santa Rose, Okaloosa, Gulf, Franklin and Wakulla. Two of these (Panama City Beach and South Walton) levy a special tax for mosquito control. The other districts are operated by the boards of county commissioners. Of the total funds expended by the districts for arthropod control, only 6.4 per cent is spent on dog fly control.

Research in Dog Fly Control

Scientists of the Federal Government found that dog flies bred in the marine grasses of Florida bays and carried on the first research toward the control of the pest. Although the federal groups stated that their

unified control program was effective in reducing the fly population, the local control programs which followed have not been as successful.

In 1963 the State Legislature provided funds to the State Board of Health (now Division of Health) for the construction of a laboratory in West Florida to study the dog fly problem. The State Board of Health secured matching funds from the U. S. Public Health Service and built the West Florida Arthropod Research Laboratory in Panama City.

As previously stated, the dog fly is a serious economic pest in West Florida because of its damaging effects on the tourist trade at the resort beaches and its attack on livestock and wildlife.

The earliest research by the state laboratory was designed to begin to give relief from the ravages of adult dog flies at the earliest possible time. The use of insecticides was the only practical method for accomplishing this and therefore tests were initiated as early as 1964 to start providing local control programs with information for effective insecticidal control of dog flies.

The Laboratory gives this information through memorandums issued by the Division of Health's Bureau of Entomology. These memorandums give detailed recommendations on chemical formulae and instructions on how and when to apply the insecticides. The Laboratory also furnishes the local control districts with data on tides in the area. It is the responsibility of the mosquito control district to take this information and carry on the dog fly control work in the field.

To help carry out its research, the Laboratory raises cages of dog flies in its insectary. Here the adult flies are fed an animal blood formula and they lay their eggs on damp pads placed beneath the cages. These eggs are hatched and the flies raised to adult stages. To study the flight range of dog flies, some are dyed and released at dawn — when the winds are right. Some of the dyed flies have been trapped as far as 37 miles from where they were released, indicating that the dog fly ranges far from its birthplace.

To test the effectiveness of insecticides, the larvae of the dog flies are placed in cages where there are beds of marine grass. The grass is sprayed with the chemicals and the percentage of adults that emerge and survive is noted.

Research in aerial spraying of dog flies on the beaches is continuing and the Laboratory staff feels that work on this difficult and highly technical problem has progressed to a point where an effective recommendation can soon be made. The Laboratory uses an airplane donated by the Brevard Mosquito Control District in testing the effectiveness of aerial sprays.

Control Where Dog Flies Breed

The adult dog flies are hard to control once they have emerged from the pupa stage, their wings have dried and they have scattered into the surrounding woods. One of the best places to control the insect, then, is on the marine grass — the breeding sites.

Removing the breeding material is one way to control the breeding. In some places workers can scatter the marine grass so it will dry out or it may be buried. Problems of excessive breeding have risen where homeowners along the bays, shores and lakes rake the grass into piles — thinking that they are helping control dog flies. But this just leaves huge piles for more dog flies to lay their eggs.

DDT has been widely used as a spray for dog fly control since World War II, but it has been abandoned because of complaints that it contaminates the environment. Now the mosquito control districts spray the marine grass deposits along the shores with methoxychlor — a residual spray — that does not last so long in the environment and breaks down faster.

Because this chemical is effective for several weeks and dog flies will not breed in grass deposits that are more than three weeks old, the breeding material needs to be sprayed only once. In order to detect new grass deposits and prevent the respraying of old deposits, the Laboratory has devised a method by which a dye is added to the formula and the local mosquito control districts' supervisors can tell which grass deposits have been sprayed.

Many of the bay shores and coves are not accessible by road and the local mosquito control districts use boats to get the insecticide to the grass deposits. Spraying should start when the first small deposits of marine grass appear on the shores (some in early May) and continue until November or later.



DOG FLY CONTROL — Workmen from the Bay County Dog Fly Control Program rake eel grass back into Deer Point Lake to prevent dog fly breeding. Insecticides cannot be used because the lake is the source of water for Panama City.

Where dog flies breed in eel grass along the shores of reservoirs that serve as drinking water for municipalities, the local control programs do not spray and the grass has to be raked back into the water to prevent fly breeding.

Ground Fogging for Dog Flies

Telephone complaints by citizens to local mosquito control district offices are one source of information that dog flies are biting, but many more facts are necessary for the most efficient control. The districts must learn about the day-to-day activities of the fly population in various areas of the community. This type of information is also needed for control of mosquitoes and other pests.

Control of adult dog flies is guided by results of daily inspection in areas to be protected. It is recommended that inspection "stations" be established at two to three mile intervals along the beaches and visited daily by inspectors during the dog fly season.

A "landing rate count" is made and recorded at each station. This is carried out by the inspector standing still for one minute and then counting the number of flies on the front of his clothing. Where the

Laboratory Only Does Research

Because of its activity in dog fly research, many residents of the Panhandle are under the impression that the West Florida Arthropod Research Laboratory carried out control of dog flies. The Laboratory at Panama City has no responsibility to control dog flies; its function is to make recommendations to the county control programs. The local districts of the Gulf Coast counties are responsible for the control of dog flies and complaints of biting flies should be made directly to their offices.

number of flies demand immediate attention, the information is telephoned to the mosquito control headquarters. The fogging trucks are sent out — weather permitting — to areas with large numbers of flies. While daytime fogging can be used in dog fly control, it is not recommended for mosquito control. Best results against both pests by this method are obtained by fogging at night.

A New Dog Fly Control Program

The counties and mosquito control districts of the West Florida Gulf Coast have carried out dog fly control programs over the years. From time to time, unusual storms, such as hurricanes, have driven huge amounts of marine grass upon the shores, control of breeding has been inadequate, and exceptionally large broods of dog flies have resulted. Following Hurricane Camille in 1969, the largest number of dog flies ever seen by the Laboratory personnel occurred. Landing rates of 100 dog flies per minute were experienced and the entire Gulf Coast from St. Marks to Mississippi suffered economic loss.

Control operations have not been equally effective along the Coast. Poor supervision in some counties, lack of sufficient funds, failure to operate for the full season, poor inspection programs, inadequate coverage and improper application of insecticides have resulted in outbreaks of flies each season.

While some county control programs are well directed, others have suffered from lack of close supervision and good direction. There are no entomologists or entomological inspectors in any of the West Florida control programs; and the state, up to the present has not been able to furnish the supervision needed. Despite these facts, control measures have been successful enough to justify the construction of tourist facilities along much of the coastal area known as the "Miracle Strip."

Business interests of the area believe that a more efficient dog fly control program would prevent the early departure of guests because of dog fly outbreaks and extend the tourist season beyond the traditional Labor Day weekend closing. This would increase the tourist economy of the area.

The Division of Health, after watching the present control for some 15 years, is convinced that uniform control is needed to bring about more widely successful programs. The dog fly does not respect county or district boundaries and good control in a particular county will not assure the absence of this far ranging pest where effective controls are not maintained by adjacent counties.

The Division of Health is seeking some \$75,000 in a special grant to bring about a more efficient and effective dog fly control program from the St. Mark's River to the Perdido River.

If the 1971 Legislature approves this proposal and appropriates sufficient funds, the Division of Health proposes to employ a top-level entomologist at the West Florida Arthropod Research Laboratory, who will spend the time of the dog fly season — from the middle of June through October — supervising and coordinating the entire dog fly control operations. He will see that there is adequate personnel, equipment and insecticides in each county and district and that effective control measures are carried out. The equipment, labor and insecticides would be furnished by the individual counties, supplemented by additional labor, equipment and insecticides from the grant funds as they are considered necessary by the Division of Health. The entomologist will spend his off-season time in dog fly research and technology.

Competent college students may also be hired on a temporary basis to act as crew leaders and otherwise give assistance where they are needed. This special grant could pay great dividends to the Panhandle area of Florida as well as to the entire state's economy and tax structure.

The technology for effective control of dog flies in West Florida is available. This pest can be controlled now by proper and adequate utilization of this information.

CONTROLLING THE RODENT

Everyone loves Mickey and Minnie Mouse (those delightful Walt Disney characters) but no one likes a rat. Some people, especially boys, may keep a white mouse for a pet, but the common rodent is anything but desirable.

Man has been combating rats and mice across the earth for centuries and it is estimated that there are still more rats on the face of the earth than humans. They have followed man to most of the areas he has settled. Man's indifference and carelessness in handling food stuff and refuse has kept rat populations alive — in close proximity to his home, work and playground. Therefore, they are called domestic rodents.

As a result of this relationship, man suffers from rat bites and rodent-borne diseases.

Murine typhus fever is transmitted from rat to man by the rat flea. The organism that causes typhus enters the blood stream when feces of infected fleas are rubbed or scratched into a flea-bite wound or broken skin.

The plague which killed millions of people in other parts of the world — even in modern times — is the most serious of the diseases. The plague, also known as the "Black Death," is transmitted from the rodent to man by the rat flea.

Leptospirosis (Weil's Disease) results from direct or indirect contact with infected urine of rodents. The germs, which are found in water and on food may enter the body through mucous membranes or abrasions on the skin.



THEY BIT THE DUST—

A rodent control worker counts the dead rats taken from burrows near these buildings.

Rats spread trichinosis, a disease that infects man, through the eating of pork that is not thoroughly cooked, or by eating food that is fouled by excrement of rats or mice.

Salmonellosis is a common disease that is caused by the contamination of food supplies by the urine or feces of infected rats.

Other diseases carried by rodents are rat-bite fever, rickettsialpox and Tamiami virus which is found in rodents in the Florida Everglades.

Common Species

There are two main species of rats found in Florida — plus the tiny house mouse.

The **Norway rat** (also called the brown, sewer, wharf, house or barn rat) is generally found throughout the temperate regions of the world. It burrows in the ground, under foundations of buildings, and in rubbish dumps. It nests at or below ground level.

The Norway rat will gnaw its way through wooden walls to gain access to food supplies and there are incidents where it has attacked paralyzed, helpless persons and babies. An adult Norway rat weighs about one pound, has a reddish brown coat, blunt muzzle, a tail shorter than its body, and small ears.

The **roof rat** (also called the black, gray or fruit rat) is an agile climber and ranges throughout the tropics and Southern United States. It lives out doors in tree tops, dense vines and lush undergrowth during the warmer months. When cooler weather comes, it invades attics, false ceilings and walls and enclosed spaces of cabinets.

An adult roof rat weighs eight to 12 ounces, has fur ranging from black to grayish white, pointed muzzle, tail longer than its body and head, and large ears.

The **house mouse** is the smallest of the rodents. It weighs only one-half ounce and is dusky gray in color, has a small slender body and its tail is about as long as its body and head. The mouse has ears that are large and prominent; however, its ears and eyes are small compared with the native field mice. It lives in convenient spaces in walls, cabinets and furniture close to its food and water supply.

Mr. Rat — This is Your Life

Robbie and Rhoda Rat and their family live beneath a house on their favorite Florida street. They like the place because food and water are close by and there are many places to hide. The humans who live in the house leave food supplies around and for this the Rat family is grateful.

Robbie and Rhoda prefer to sleep in the daytime and confine their hunting for food to the early evening and morning hours. If they are hungry enough, they may seek food during the day but this is rare. They make secluded pathways along walls, under piles of rubbish, and behind or under boxes, boards and thick vegetation. Robbie is noted as a climber. He will scale walls, walk wires, and swim streams to obtain food. His teeth grow rapidly and he spends a little time each day gnawing at his pet project — a lead pipe that leads up into the house under which he lives.

Rhoda is not a tidy housekeeper. She prefers pieces of paper and cloth to line her nest so her babies will be warm. She and Robbie had their first litter of 10 young rats when they were about four months old. During her life span, Rhoda will have between four and seven litters spaced about 60 days apart. Robbie and Rhoda will live to be about 15 to 18 months old.

While the Rat family considers itself safe in its home, it is constantly on the alert for dangers. Robbie and Rhoda stay away from strange objects. They won't even eat strange foods. They prefer the same foods that the humans upstairs eat and they refuse anything that is spoiled. The Rat family likes meat, fish, grain and each member of the family requires three-fourths to one ounce of food each day and one ounce of water. The water supply is located in a chicken pan that the humans thoughtfully fill each day.

Typhus in Florida

Although Robbie and Rhoda Rat are not aware of it, they are the carriers of fleas. Some of these fleas can be infected with a virulent disease — typhus. Some of their ancestors were involved in the typhus fever epidemic that prevailed in Florida during the 1940's and this is when the rodent control program was started under the direction of the old State Board of Health.

The peak of the typhus epidemic was reached in 1944 when there were

483 cases — resulting in 34 deaths. Areas of the state were declared typhus epidemic areas and the county health departments, State Board of Health and the U. S. Public Health Service moved in men to combat the rats and the fleas they carried. Organized programs were carried on in Tampa, Miami, Tarpon Springs, Dunedin, Bartow, Jacksonville, Tallahassee and Pensacola.

The men surveyed buildings, dusted areas with DDT to kill the fleas, trapped rats and combed them for fleas. The fleas and specimens of rat bloods were tested for typhus germs. Then began the suppression of rats through rat proofing of buildings, poisonings, trapping, fumigating, and the improving of storage and disposal of garbage and the removal of rat harborage.

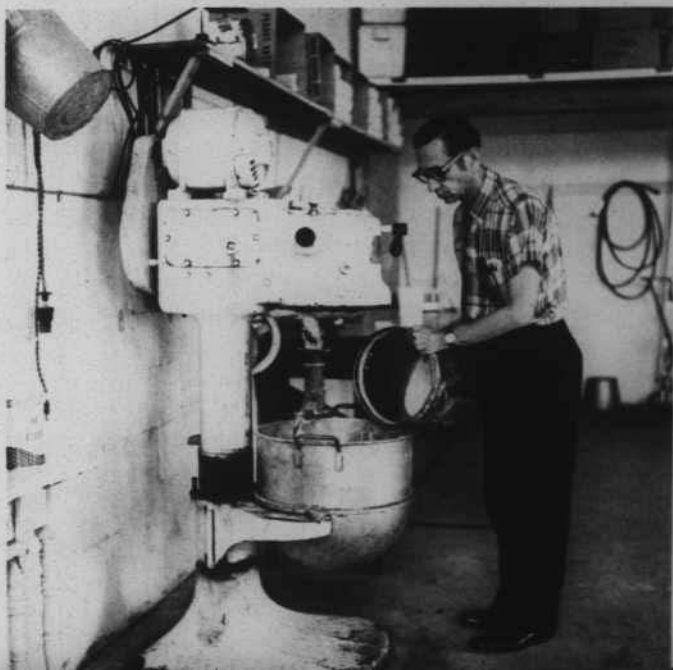
By the early 1950's the number of typhus cases had been reduced and since 1960 there have been only 12 cases and no deaths.

Existing Rodent Control Programs

Even with the small number of cases of typhus fever, Dade County Department of Public Health and the Jacksonville City Health Department continue to carry on rodent control programs.

Although the number of typhus cases is low, there is a potential danger that domestic rodents may become infected with the disease. And there are continued incidents of rats biting people who then need medical attention and sometimes anti-rabies treatment. Rodent infestation of both

MIXING BAIT — The rodent control programs in Florida use an anti-coagulating rodenticide mixed with cornmeal or cereal grain, sugar and salad oil. The programs distribute the bait free of charge to residents in their areas.



public and private buildings has resulted in the spending of millions of dollars for repairs. Many of the areas affected by rat populations are slum areas, waterfronts, shopping centers — wherever there are food, water, and poor premise sanitation.

Both the Dade County and Jacksonville programs, at one time, carried out search and destroy efforts for the residents. They placed rat bait and helped homeowners and businesses with rat-proofing of buildings and homes. Due to expanded duties and/or areas to protect, they are mostly search and destroy or bait-supplying programs at the present time.

The **Dade County Department of Public Health** program carries on maintenance rodent control work on municipal property, playgrounds and the Miami Port. It also trains maintenance men of Dade County municipalities to assist in the program and carries on the county's rabies control program.

The major portion of the program is the distribution of rat bait to homeowners through five stations or centers. Instruction on how to use the bait is also given. Staff members will honor a request from a citizen to come to his home, but they will only instruct the citizen on how to ratproof his home and supply him with bait.

In low income areas and parts of the city where it is difficult to combat rats, the men of the Dade County program place "bait stations." These are boxes fastened to walls and locked so children and pets will not get into them. They are kept supplied with a slow-killing bait. The rats quickly learn that food is available regularly in one place and the staff members can ascertain how much bait is eaten. The bait station is an effective way of using manpower and bait.

The Dade County program also is involved in the survey of poor sanitation and damaged buildings in the "Model City" areas of Dade County and Miami. A survey was made of 70,000 buildings in the area where some 80,000 persons live. Every door, broken window and access for rats was noted. It has been proposed that residents help in the rodent control program by assisting in the removal of trash and the cleaning up of empty lots. The county health department has proposed to furnish picks and shovels to dig up rat burrows and trucks to haul the debris away as it is gathered up.

But rats do not only live in the slums of the city. They are found in formal gardens of fashionable hotels, in ornamental shrubbery of shop-

HARBOR PROTECTION

— In a program of seek and destroy, the rodent control programs carry on a constant surveillance of port areas where rats are noted pests.



ping areas, and in the rural areas of the county where they live off farm produce. As the city expands, construction drives out skunks, raccoons and snakes that are rats' natural enemies. However, the rats are contented to live with man.

The **Jacksonville program** is similar to the Dade County program in that it maintains 25 stations where people may obtain free bait. Prior to the consolidation of the city and county governments, the staff of the rodent control program carried out baiting and rat-proofing in private dwellings as well as commercial establishments within the city limits. Now the program covers the former county area and the program was revamped to include ways and means of serving the needs of the public and providing the most efficient search and eradication program.

Areas where the staff has to survey and resurvey, bait and rebait until rats are destroyed surround feed mills, fish houses, meat and poultry plants, garbage dumpsters serving shopping centers, restaurants and warehouses, and shipyards along the waterfront. Schools especially are given regular attention. If the place of business is asked by the rodent control program to clean up a poor sanitary condition and it is not done, the case is then turned over to the sanitary department of the city health department for follow-up and correction.

While the rodent control programs may never completely eradicate the domestic rat, it will definitely control over-population and greatly assist in preventing wholesale migration of rats.

By making use of free bait dispensing stations at many convenient locations, the people tend to aid themselves. Public participation in the control program is a valuable aid in public health. Door to door and block by block surveys and visits in slum areas are constant reminders to the dwellers of these areas that rats are a problem that can and should be eliminated.

Ratproofing and Sanitation

For years buildings were constructed without thought to keeping rats out. However, in recent years the realization that one of the most potent measures to combat rat infestation was to shut them out, has resulted in more care in the building of new structures.

New buildings frequently have barricades below ground so rats cannot tunnel under. Screens are placed in air spaces and guards put around pipes and wires to keep rats out. Older buildings can be rat-proofed with metal strips on doors, hardware cloth or fine mesh screens on air vents and windows, preferably in sheet metal frames. Openings around pipes and conduits, which rats may use as entrances, can be filled.

Good housekeeping is the most important, perhaps the only indispensable defense against rodents. Without good housekeeping and food sanitation as a major part of the rodent control program, control and prevention is virtually impossible.

The proper storage, collection and disposal of refuse, along with good maintenance of unused materials and products are important. Garbage should be stored in water tight cans that have tight-fitting lids. Lumber and other material should be stored at least 18 inches above the ground so rats will not use the piles for hiding places.

Baits Used in Rodent Control

The most common poison distributed by the rodent control programs for rat bait is an anti-blood coagulating chemical which causes internal hemorrhage. It is tasteless and odorless in concentrations used for rats. It is a slow killer and rats will consume it over a period of time until they get enough to kill them.

The most common kind of anti-coagulating rodenticide is warfarin, a dry powder that is mixed with cornmeal or cereal grains. A small amount

of salad oil or peanut oil and sugar is also added as an attractant. If placed outside, the bait needs to be protected from the weather. The Jacksonville rodent control program distributes more than a ton and a half of prepared bait each month.

The Miami program also distributes an all-weather bait in the form of wax blocks that contain meat, fish or fruit, cracked corn and/or sunflower seeds. This has a particular attractant for rodents and works well where the bait needs to be placed out-of-doors.

A rodenticide that is quite effective but used to a lesser extent than the anti-coagulant is red squill, a poison produced from a bulb that grows in the Mediterranean region. It is mixed with horsemeat or corn meal, wrapped in wax paper "torpedoes" and refrigerated until placed in rat burrows, runs and other protected places. The most desirable property of the red squill is its emetic action. Since the rats cannot vomit, they die of strangulation.

Rodent Control Program for Florida

While the problem of rodent control and the major educational efforts in this field belong to the county health departments, the Division of Health is interested in seeing that funds be made available to all of the counties so that free bait may be given to all individuals desiring it.

The Division of Health is firm in the conviction that the program should not be in competition with commercial pest control operators who give personalized service to private homeowners and business establishments. However, in slum areas or in better residential areas where there are sick or handicapped persons who cannot afford the services of a pest control operator, the functions of the program would be justified.

For the most part the domestic rodent lives in direct proportion to the human population. It is reasonable that a good measure for granting state support could be based on state and county population. The 1970 census showed that the state population to be 6.6 million persons. The Division of Health believes that funds can be provided on a five cents per capita basis with dollar for dollar matching funds provided by the counties.

Based on the 1970 population, the formula would bring some \$333,650 per year into the rodent control work. An additional \$20,000 would be needed to administer the program. Should a county be receiving federal

funds for rodent control, state funds for the county would be adjusted in a like amount.

For the most part, the program in the larger metropolitan areas would consist of educating the private citizen to eliminate his own rodent problem — by offering free bait and teaching him the value of proper garbage storage and premise sanitation. If the individual does not have the time, and wishes to eliminate rodents on his property, he can call upon a commercial pest control operator to do the work of baiting and ratproofing the buildings.

An operating rodent control program in the large counties would take care of all the outside breeding conditions in slum areas or other areas having unusual rodent problems; assist public agencies with their rodent problems, and help “shut-ins” or elderly people who are not financially or physically able to perform rat proofing and baiting.

In the smaller counties, the rodent problems are generally confined to the individual premise and the local and state funds for the most part would be used by the county health department for furnishing free bait to the property owner.

AN EXPANDED MOSQUITO CONTROL PROGRAM

The mosquito has been a problem in Florida since the Spaniards first set foot on the North American Continent. The state would still be a place

FOOD FOR RODENTS.
Poor premise sanitation outside a restaurant keeps neighborhood rats well supplied with food.



described by John Randolph of Virginia as "a land of swamps, of quagmires, of frogs and alligators and mosquitoes" if the State Legislature had not instituted the laws which set up the local mosquito control districts in 1953 under the old State Board of Health.

During the first year of operations, 37 counties and local mosquito control districts contributed \$1.3 million and the state put up \$1.6 million for arthropod control. Since that time, the percentage of matching funds contributed by the state has decreased from 75 per cent in 1953-54 to a low of 13.50 per cent for the fiscal year of 1968-69. In the meantime, the local districts and counties put increasing amounts into the "arthropod control kitty." In 1969-70, local funds totaled \$8.5 million while the state put up 15.75 per cent, or \$1.8 million.

Increased Tourist Business

Florida, with its warm climate, semi-tropical vegetation and many natural and man-made attractions, has served as the playground of the Western Hemisphere for many years. The growth of tourism in Florida would not have been possible without the decrease of salt marsh and other mosquitoes. Many areas of Florida — especially the more populated Southeastern section of the state known as the Gold Coast — would not be inhabitable today if mosquitoes had not been controlled. This growth of the state and its economy was made possible by the Division of Health and its arthropod control program.

Expanded Funds

The Department of Health and Rehabilitative Services and its Division of Health are seeking to expand the arthropod control program's funds to prevent the transmission of encephalitis and other arthropod-borne diseases; to protect and encourage the tourist industry, and the resident population; and to make Florida living more desirable, which will induce tourists now visiting the state to return later and establish their homes. All of these objectives must be met if Florida's prosperity is to continue and grow.

The Division of Health is seeking to expand the program. One type of fund permits the health agency to match dollar for dollar local funds up

to, but not exceeding \$15,000 for any one county for one year. This is so local mosquito control districts can carry out approved temporary control measures. A total of \$795,000 is sought for this fund.

The Legislature has already appropriated \$1.6 million for permanent control work for 1970-71. The Division of Health is asking for an increase of \$463,000 over this amount for the next fiscal year so that counties and local mosquito control districts can plan their budgets in advance and know what the state will give for its share of the program. The matching basis for this type of control work is limited by law to 75 per cent of the local funds, and not to exceed \$150,000 for any one county during one year.

DOG FLIES, RODENTS AND MOSQUITOES

Life would be pleasant if there were no dog flies, rats or mosquitoes — no pests to carry disease or annoy us.

But the realities of life tell us that these pests exist and they will not go away if we ignore them.

The next best thing is to find out through research the secrets of these pests — how and where they breed, what they eat, how far they fly or travel, and what will eradicate them. Elimination of the pests comes next.

Research and control of dog flies, rodents and mosquitoes take money. This is another of the realities of life and we cannot say "Let George do it!" The Department of Health and Rehabilitative Services and the Division of Health cannot carry out its projected programs without the support of the people of Florida and their State Legislature.

Let us hope that Florida will soon be able to control dog flies, mosquitoes and rodents so that

- another Miss Jones from Alabama can enjoy a vacation on the West Florida beach;
- the Smith family can maintain their home free of rats and their daughter will be safe; and
- Mr. and Mrs. Brown can enjoy their patio in the twilight hours.

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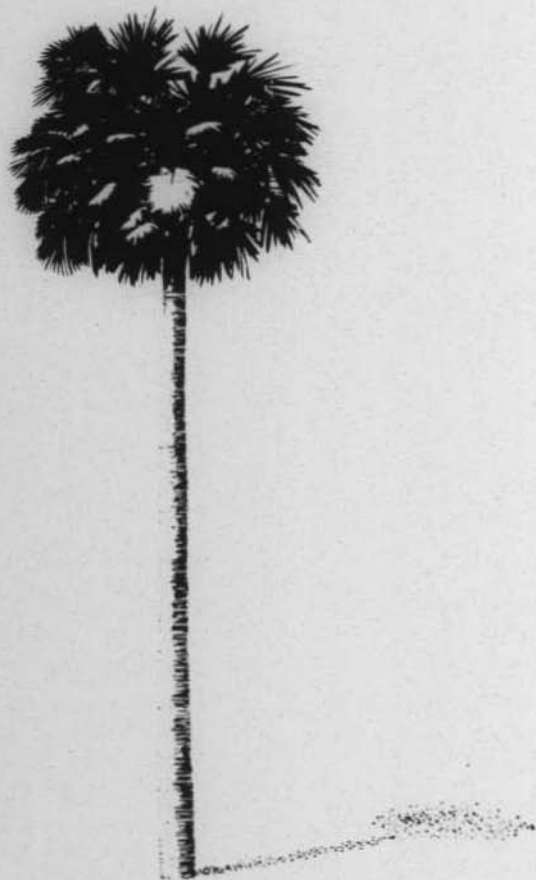
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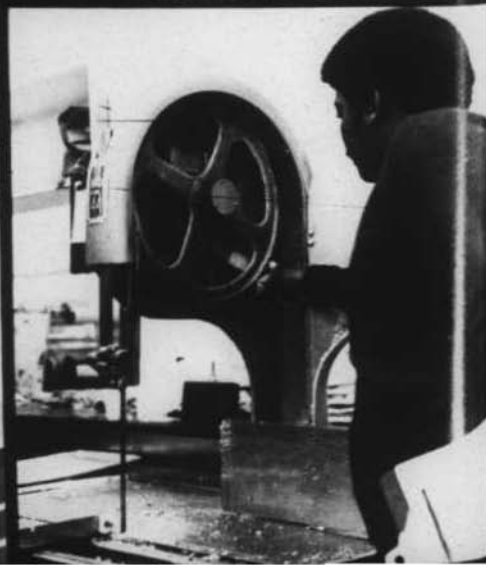
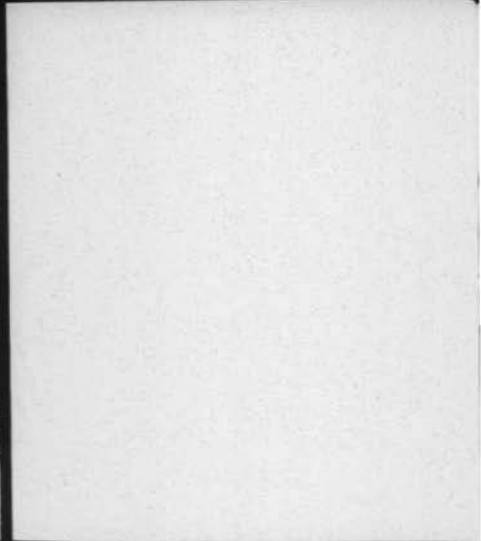
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FLORIDA HEALTH NOTES



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FEBRUARY 1971

*SAFE FOODS-
SAFE PRODUCTS*



SAFE FOODS- -SAFE PRODUCTS

Floridians are concerned, and rightly so, about

- the food they eat,
- the products they buy,
- the protection of their children and families from harmful substances,
- the means of keeping unsafe products off the market, and
- the ability to seek compensation for damages caused by products and hazardous substances.

Many Floridians are injured each year by hazardous substances and products. Some people are made ill by foods they buy and eat. The growth of the American industry has produced a gulf between the manufacturer or food processor and the consumer. The consumer frequently finds a number of retailers, wholesalers, distributors — middlemen — whom he must go through before he is able to communicate with the manufacturer.

When Mrs. Florida Housewife finds that the rattle she purchased for her baby can be dangerous, what can she do?

Mr. and Mrs. Jones eat dinner at a local restaurant and Mr. Jones becomes ill. Who finds out what made him sick?

Mr. and Mrs. Northward are on vacation in Florida. They become ill after eating at a drive-in. Who is to make sure the food is safe in the future?

The Division of Health (as part of the State Department of Health and Rehabilitative Services) and its partners in health, the county health departments, are responsible by law for the health of the people of Florida and the 22 million tourists. This means more than just preventing food poisoning. It also means — according to public health definition — promoting a sense of well-being.

2

This issue of **Florida Health Notes** will tell you about Safe Foods and Safe Products; the training of sanitarians who try to protect you from contaminated food; the education of food service workers who serve you; the laboratory support given these workers, and some of the agencies who try to protect you from hazardous substances and products in the market place.

SAFE FOODS

The food and beverage service industry is big business in Florida. Eating and drinking has always been, and will continue to be, one of the principal occupations of mankind. In Florida there are some 33,000 food establishments; of these nearly 23,000 are eating and drinking places; about 8,000 are grocery and meat markets (food outlets) and the balance are food processing plants, abattoirs, shellfish and crustacea plants, and other types of food places.

Both the popularity of eating out and necessity for eating meals away from home have resulted in several socioeconomic changes in our way of life. Large business and metropolitan centers have made it necessary for workers to take lunch at food-service establishments; and distance from jobs to home makes it inconvenient to do otherwise. The employment of women in business and industry adds further to the patronage of food service places.

The automobile has resulted in the heavy patronage of drive-ins, highway cafes and refreshment stands. The 22 million tourists who visit Florida annually find that Florida has a wide range of eating places — ranging from small curbside drive-ins to world-famous restaurants which serve gourmet cuisine.

Food establishments have increased in number, size and kinds. Representatives of many restaurant and hamburger chains dot Florida roadsides. Preparation of food in a centralized kitchen by caterers with

FLORIDA HEALTH NOTES

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CHECKING THE LABEL — Sanitarians make certain that meat sold in a market has been inspected and properly labeled.

distribution to other locations is becoming more popular. Rapid transportation, modern refrigeration and improved sanitation have made many foods once available only in a particular area, or at a specific season accessible to millions of consumers in other parts of the country and at other times of the year.

As food processing methods and transportation have changed, new problems in food protection also have risen. The multiple handling of food in all of its phases and its movement in interstate commerce from the point of origin and production to the final consumer require considerable care. Public health and the food industry need to work together to insure that the food and drink served the public are safe and wholesome.

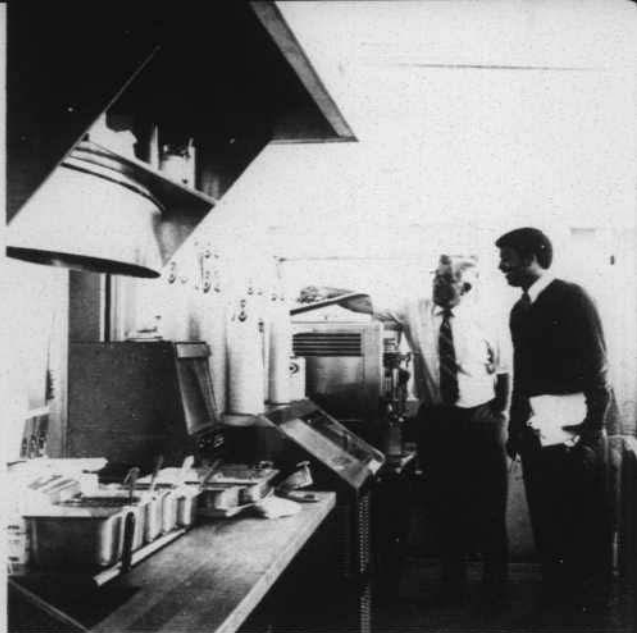
Unfortunately, food is easily contaminated and it is only through the watchful eyes of the food industry and public health that there are not more cases of food-borne illnesses.

The Old and New in Food Hygiene

The Old Days may have been wonderful but life then was simple; the food producer was closer to the consumer; food products were not sophisticated.

KITCHEN INSPECTION—

A cafe's kitchen is inspected for cleanliness by the county health department sanitarians. The standards they enforce are set by the **Florida Administrative Code**.



The manager of the local meat market bought his supply directly from the farmer who raised the pork, veal and beef. His store usually had sawdust on the floor, and the meat was cut, wrapped (perhaps in a newspaper) and handed directly to the consumer.

The open pickle barrel was found in every grocery store. Vegetables were usually sold from carts that were driven through the neighborhood.

The local fashionable hotel had the most luxurious restaurant in town. It was endowed with atmosphere — flickering gas lights, dusty palms and unscreened doors and windows. Refrigeration was unknown; food was left uncovered; although the kitchen was modern for its day, it was not the most sanitary.

Sanitary reforms have been the aim of the old State Board of Health since its inception. Early editions of **Florida Health Notes** told of health officials' concern with "smelly closets" (privies) which could transmit disease when used by persons with intestinal parasites.

A 1912 issue told of public health's concern with "baker's bread" and the thought that if such bread was not baked well in the center, it could

spread diphtheria. "Patent (refined) flour" was blamed for disorders of the digestive tract.

Many causes of disease were unknown during the early days of the State Board of Health and little thought was given to the dishwasher who had a sore on his neck, the waiter who had a cough, or the waitress who had a little upset stomach but still kept working.

During the early days of the State Board of Health, regional sanitary officers carried out some inspection of food service establishments. During the decade between 1920 and 1930, district sanitary officers inspected all food handling places, dairies, and drug stores on a regular basis. However, the inspectors were not trained in the fine points of food hygiene and inspection was confined mainly to rodent and fly control, spoiled foods, disposal of wastes, and a check on the water supply. There was no training of food service workers. There were many unsanitary practices. Probably many thumbs were dipped in bowls of soup; coffee cups stacked one on top of another for easier carrying; and personal hygiene, such as washing hands after going to the bathroom, was ignored.

Chapter 154 of the Florida Statutes, under which the county health departments were formed, lists a county health officer, public health nurse, sanitarian (who is trained in public health), and a clerk as the basic health department staff. The inspection of food establishments became part of the duties of the sanitarian, along with the answering of nuisance complaints, inspecting of trailer parks and septic tanks; checking out garbage and waste disposal. Sanitarians were expected to make regular inspection of local restaurants, and make spot checks at peak hours to check on work habits of employees, storage of food, disposal of garbage, and potential food hazards.

The Establishment of Food Service Training

Following World War II, when tourism began to expand in Florida, establishments that served food and drink began to increase. There were no laws to control them and they could do as they wished about sanitation. The old State Board of Health saw the need for the training of workers who served food. In 1947 the first training courses for food handlers were offered in Deland, Sanford and Perry. A workshop was given at Florida State University. A total of 620 persons took the six-hour courses that offered basic food practices in sanitation, personal hygiene, control of pests, and a general awareness of health hazards in food service.

The program increased under the supervision of the State Board of Health's education and information program, and the number of food service workers who took the course increased. Over 10,000 persons were trained in food handling in 1948, and several thousands took the courses over the next few years. Regular classes were held on a permanent basis in a number of county health departments and temporary courses were held in joint sponsorship with the U. S. Navy, state tuberculosis hospitals and other state and voluntary agencies.

By 1956, the food industry in Florida had grown to such an extent that regulations were required to clarify the types of food establishments that needed to be part of a permit program. The food handlers training program declined and only 3,000 restaurant operators and employees were certified by county health departments in 1956. The cutback was due to the lack of funds, shortage of personnel, work load of the county health departments, and the inability to devote sufficient time to planning and conducting the programs.

Food Service and the Administrative Code

Florida Statute 381 says, "It shall be the duty of the division of health to: ". . . adopt, promulgate, repeal and amend rules and regulations consistent with the law regulating . . . sanitary practices relating to . . . production, handling, processing and sale of food products and drinks, including milk, dairies and milk plants; canning plants; shellfish dealing and handling establishments; restaurants and all other places serving food and drink to the public . . ."

In compliance with the law, the Division of Health has published rules and regulations known as the **Florida Administrative Code** under which county health department sanitarians perform their duties.

The rules and regulations include such food service places as restaurants of all types, night clubs, industrial feeding operations, private organizations routinely serving food to the public, roadside stands, tearooms, cafeterias and all types of places serving food or drink to the public with or without charge.

Also included are temporary food service establishments connected with fairs, carnivals, circuses, public and private exhibitions or transitory gatherings;



MEALS ON WHEELS — A mobile food unit is inspected by sanitarians before it goes into operation. These units serve construction sites, beach areas, and places where people gather.

- caterers that prepare food in a kitchen or commissary for service elsewhere;
- drive-ins where food or drink is served at outside windows, counters, tables or motor vehicles;
- mobile food units where food is served from self-propelled or movable vehicles; and
- vending machines which dispense servings or packages of food or beverages upon the insertion of a coin.

Food served in or by these places should be from a source approved by the health agency. The food must be clean and wholesome, free of spoilage, adulteration and misbranding, and safe for human consumption.

Meat and meat products received and used in food service establishments should be identified as having been officially inspected for wholesomeness and sanitation under a federal or state regulatory program.

Poultry, poultry meat products and game birds should be identified as having been officially inspected under a federal or state regulatory program and the container in which they are received labeled so as to retain the identity of the source.

Bakery products and frozen desserts should be prepared in an approved food service establishment or commercial food processing plant. Milk and milk products must meet the standards of quality established by state and local laws. Only pasteurized milk and milk products can be served; all milk and fluid milk products must be served in the containers in which they are received, or from a bulk dispenser approved by the state.

To protect Mr. and Mrs. Joe Citizen, foods, while being stored, prepared, displayed, served or sold at a food service establishment, must be protected from dust, flies, rodents, vermin, toxic materials, unclean equipment and utensils, unnecessary handling, coughs, sneezes, flooding by sewage, overhead leakage, and other sources of contamination.

Perishable foods must be stored at such temperatures so as to protect them against spoilage. All potentially hazardous foods must be kept at safe temperatures except during necessary preparation and service. Frozen foods must be kept at zero degrees (Fahrenheit) or lower, except when being thawed for preparation or use. Foods requiring refrigeration, such as custards, puddings, cream-filled pastries, should be kept at 40 degrees or lower; foods that need to be warm must be kept at 150 degrees or higher.

Potentially hazardous foods, which are to be served without additional cooking, such as salads, and other mixed foods containing

DOUGHNUT SHOP —

A dual inspection of a small bake shop is made by the food coordinator and sanitarian.



potentially hazardous ingredients or dressings, should be prepared with a minimum of manual contact.

The **Florida Administrative Code** says that food may be examined or sampled for laboratory examination by the Division of Health as often as necessary to determine whether the food is free of unwholesomeness, adulteration or misbranding.

No food intended for human consumption should be served, sold or offered for sale that is unwholesome, adulterated, misbranded, unsafe or in any way likely to injure the public health. The **Code** says, "It is the duty of the health authority to condemn and destroy or otherwise render inedible all such food sold, offered for sale, or stored by the food service establishment; providing that where the owner resists such action, legal procedure shall be taken against said owner for violation of this section (of the **Code**) and the food shall be impounded in proper storage for court evidence."

The **Florida Administrative Code** also prohibits persons who are affected with a disease in a communicable form, or the carrier of such disease, or afflicted with boils, pimples, infected wounds, sores or an acute respiratory infection, from working in areas of a food service establishment where there is a likelihood of the person contaminating the food. Restaurant personnel should wear clean outer garments, maintain a high degree of personal cleanliness and conform to hygienic practices while they are on duty. Employees should not smoke or use tobacco in any form while working in the preparation or service of food, or while handling utensils or equipment.

The **Code** also lays down regulations concerning the cleaning and maintaining of food equipment and utensils; the care of the rooms in which foods are prepared and served; and the sanitary control of water supplies, ice-making machines, sewage disposal, plumbing, hand-washing facilities, garbage and rubbish disposal and vermin control.

The New Look in the Food Hygiene Program

The Division of Health and Florida has the **Administrative Code** which sets down rules and regulations for the maintenance of food service establishments and other food outlets and food processing plants. But there are 67 county health departments and many courts which enforce the laws and regulations. There are many ways the rules and regulations are interpreted. In recent years there has risen in the United States a new type of food establishment — the chain operation with food

and drink service outlets in many communities. These operate in the various counties and have found wide interpretation of the **Administrative Code**.

The manager of a hamburger stand may be transferred from one Florida county to another, for example, and find the interpretation and enforcement a little stricter, or lighter. He may not go along with the new requirements "because they did not enforce that regulation in my home county." This lack of uniformity in the enforcement of sanitary codes in the various states has also been experienced by chain operations.

The Division of Health is trying to improve the uniformity of interpretation and enforcement of the **Administrative Code**. In the past a few inexperienced and improperly trained persons have often tried to inspect food establishments. This perhaps was worse than no inspection at all. Also, these men may not have been informed on how to properly take specimens of foods and make swab tests of utensils for laboratory examinations. The Division of Health, through the training of sanitarians and local food service workers, is now improving the quality of interpretation and enforcement of the food sanitation programs.

Training, it would appear, is an important facet in the food hygiene program. The field sanitarian and his supervisor need to know how to inspect food service establishments in the best possible manner. Managers of these establishments and their employees need to be trained on how to protect food, maintain food personal hygiene, and be aware of hazardous practices.

Training

There are five phases of training in Florida that are aimed at protecting Mr. and Mrs. Joe Citizen from becoming ill through food contamination.

- At the state level, the Division of Health has sanitary consultants who are highly trained in food inspection and hygiene. They are certified as "food-service sanitation survey officers" by the U. S. Public Health Service. Their certificates are good for three years and can be renewed only by additional in-service training.

- On the county level, a supervisor or sanitarian is trained as "food coordinator." In a large county, the individual may spend part of his time training field sanitarians and food service workers from restaurants,

An Anecdote of the Old Days

The Division of Health is, and never was, interested in regulating prices but this brief story of the Old Days shows how simple life was in the market place.

Prices were never final. Mrs. Oxley was continually haggling with her butcher. The price of chicken was never the same. Eggs might be 30 cents for large ones, 20 cents for medium size ones, and 10 cents for a dozen of cracked ones.

One day Mrs. Oxley was in the store with a friend. "What is the price of pork chops today?" She asked.

"Thirty cents," snapped Mr. Schultz, the butcher.

"I'll take two pounds," replied Mrs. Oxley.

The friend was horrified. Never before had Mrs. Oxley taken the first quoted price. After they left the store, the friend asked, "Why did you pay thirty cents? You could have gotten them for a lower price."

"Don't worry," said Mrs. Oxley. "I fixed Mr. Schultz. When he gets home, he's going to shoot himself. He's already wishing he'd charged me fifty cents."

school lunchrooms, hospitals, and various establishments. He also plans, organizes, manages and makes periodic evaluations of local food protection programs and upgrades all food sanitation practices. In a small, multi-county unit, one of the sanitarians will serve as coordinator for the entire unit. He will train the other sanitarians who will inspect the food service places in their counties.

- The field sanitarians are trained by the food coordinators with the help of the state consultants. All of the field personnel who are involved in food establishment inspection can be trained during a relatively short period. In the large and most of the medium size counties, this training is done within the department. In other counties, it is carried on through short courses to groups of sanitarians.

- Food establishment managers are trained by the local sanitarians and food coordinators. The Division of Health consultants may assist the county health department sanitarians with the planning, development of lesson plans and curriculum of the course. If there is a county laboratory, such as there are in a few of the larger counties, the sanitarian may call on



TRAINING — A specially-trained sanitarian teaches the fine points of food service and hygiene to a class of lunchroom employees from a county's school system.

personnel from the laboratory to discuss bacteriology and laboratory support of the food hygiene program.

● Continuing training of the food service worker is also the responsibility of the county health department sanitarians, and as with the course for food establishment managers, the Division of Health's consultants give assistance with planning and developing the courses.

Classroom and Field Work

Training of the field sanitarian and the food coordinator is not a one-shot affair. In order to remain in good standing, they must continue with their education in food hygiene.

They are taught **Administrative Code** requirements and interpretations, techniques of proper inspection, and evaluation of the food

service program. They are also taught proper record keeping, how to make out follow-up schedules and carry on public relations — such as how to approach the operator of a restaurant, how to dress, and how to interpret the regulations. They are given a basic knowledge of bacteriology, legal problems involved in the food hygiene program, laboratory service available to the sanitarian, and how to train food service managers and workers.

When the field sanitarian has finished his classroom work, his instructor — who may be the food coordinator for his county, or consultant from the Division of Health — takes him out into the community and together they make a dual inspection of a food service establishment. Then the instructor points out to the sanitarian the good points, where he made mistakes, and how to improve his inspection technique.

The food service manager and his employees are taught about the five major causes of food-borne illnesses:

- disease producing germs;
- poison given off by germs;
- parasites;

TRAINING AT THE STATE LEVEL — State consultants, who are trained in food inspection and hygiene, are certified as "Food Service Sanitation Survey Officers" by the U. S. Public Health Service.

U.S. Department of Health, Education, and Welfare
Public Health Service

Food-Service Sanitation Survey Officer

Ronald L. Maston

This is to certify that _____
has satisfactorily demonstrated his competence to interpret the provisions of the Food
Service Sanitation Ordinance and Code recommended by the Public Health Service,
and to conduct properly food-service sanitation program evaluations in accordance
with the Public Health Service evaluation method, and is hereby entitled to inclusion
in the list of Certified Food-Service Sanitation Survey Officers published annually
by the Public Health Service.

[Signature]
Public Health Service Regional Milk
and Food Consultant
Environmental Sanitation Program
National Center for Urban and Industrial Health

Date of Issuance **4-7-70**

Expiration Date **4-7-73**

Chief, Food Protection
Environmental Sanitation Program
National Center for Urban and Industrial Health

- chemicals, and
- poisonous plants.

They are taught how to meet the consumer's expectations of safe food; how to detect infections, and what to do about personal hygiene. They are taught about refrigeration, good housekeeping, food protection, cleaning of utensils, and potentially hazardous foods.

Laboratory Support of the Food Hygiene Program

The Division of Health is seldom praised for its work in preventing epidemics when they do not occur. Sometimes, while it is working quietly on a health problem, unknowing and impatient people express the opinion that the Division of Health is "doing nothing" or "dragging its feet."

Food-borne illnesses can break out in a matter of hours. These are more often the result of mass feedings — such as at a company picnic or banquet, or in a school lunchroom — where the same meal is served to many people. The impact of the outbreak is sufficient to warrant public notice with subsequent investigations by official agencies. However, every day many people become sick through food, and although they suspect it may be something they ate, they do not report it. The total amount of food-borne illnesses in Florida is not known since reporting is neither accurate nor complete. Most people would rather forget that they have had an upset stomach and diarrhea.

There has been an increase in the number of food-borne illnesses reported in recent years. In 1967, only 130 cases were reported. In 1969, two years later, the number rose to 1,161. This is not because of the deterioration in food handling practices, but through education, the public and food industry are more aware of food-borne illnesses.

When a food-borne outbreak occurs, the Division of Health puts sanitarians, epidemiologists and laboratory technicians onto the problem. They try to find out

- what organism caused the outbreak,
- what were the circumstances that led to it, and
- how did it differ from other outbreaks of food-borne illnesses.

They know that foods that cause the illnesses must contain a certain type of organism (not all bacteria cause food poisoning); the bacteria must have the proper type of food on which to grow; and it must have the

LESSON IN BACTERIOLOGY — During a class in food hygiene, a food service worker places a thumb print on a plate of laboratory media. The sanitarian incubates the plate for 48 hours. He then shows the class how large colonies of bacteria grow from those left in the thumb print.



right amount of time and the right temperature. Without all of these factors, food-borne illnesses do not develop. A person cannot tell when a food has bacteria that causes illness. Such bacteria produce no bad odor, no bad flavor, no bad appearance. Spoiled food may look, taste and smell bad — but it may not necessarily cause food poisoning.

When a food-borne illness occurs, the sanitarian tries to obtain samples of all foods that were eaten and send them to the laboratory for analysis. The laboratory bacteriologists try to discover which of the many organisms were involved. Through experience, the public health laboratories are finding that more and more organisms are to blame for food-borne diseases and they are closing the gap on unknown causes of food poisonings. Running these tests takes time and before the results are known, the people involved have been sick and are usually well again.

The Central Laboratory in Jacksonville, regional laboratories in Miami, Orlando, Pensacola, Tallahassee, Tampa and West Palm Beach, and a few of the county health department laboratories, test samples of foods to find out under what conditions they were prepared and served, or the level of contamination.

- A bacterial count is made to determine the cleanliness of workers' hands, equipment and utensils and the general housekeeping practices of a particular establishment.

- A staphylococcus count is made of food to find out whether it has been contaminated by persons who were careless when handling the

food, who may be suffering from a drippy nose, or have head colds, bacteria-laden cuts or boils on their hands. Given the right amount of time and proper temperature, the germs will multiply — causing food poisoning.

- A coliform count is made to determine whether the number of everpresent organisms found in the intestinal tracts of man and animals and even in food have been kept to an acceptable minimum. A high count indicates poor handling of food during preparation, inadequate refrigeration, and poor personal hygiene.

- A swab test will determine the cleanliness of dishes and utensils or unsatisfactory sanitizing of equipment.

Food Hygiene — A Preventive Program

The objective of the food-service sanitation program is the protection of Mr. and Mrs. Joe Citizen's health. This is done through

- the training of sanitation consultants, food coordinators, field sanitarians, restaurant managers and food service workers;
- the prevention of food contamination;
- the approval of food supplies;
- the prevention of the growth and development of bacteria; and
- the use of public health laboratories to detect improper food handling, carriers of disease, and unsatisfactory housekeeping in food establishments.

The sanitarians cannot carry out the food-service sanitation program alone. It is an important public health activity and accounts for a large share of the county health departments' time and expenditure. The program also involves other agencies, such as the U. S. Public Health Service, the Federal Food and Drug Administration, and the assistance of the various agricultural departments. Such cooperation has become increasingly important as the result of the wide-spread movement and transportation of raw and prepared foods and food products.

The assistance of the Federal Government and other states is needed — not only for the supervision of foods in interstate commerce, but in the promoting of uniform interpretation and administration of rules and regulations covering the food service industry. Information from one community may be useful to others. Food products manufactured in one state may be found contaminated and the exchange of rapid information is necessary to find and remove the food from the shelves of retail stores before it is sold.

SAFE PRODUCTS

Related to the protection of Mr. and Mrs. Joe Citizen from food poisoning, is the program to protect them from hazardous substances and products. This program was given to the Department of Health and Rehabilitative Services and the Division of Health by the Florida Legislature.

Thousands of persons are killed and millions injured every year in American homes through fires, falls, poisonous substances and misuse of products. Electrical appliances, flimsy ladders, high heels, cooking devices, flammable fabrics, home fixtures, recreational equipment all contribute their share of accidental deaths and injuries.

The most dangerous years are below the age of five. In the United States, approximately 7,000 children under the age of 15 die in home accidents; more than two million are injured while using bicycles and playground equipment.

Consumers cannot always be protected from hazardous substances or products but they can be warned through literature or labels of the dangers and how to cope with them. Sometimes, it is necessary to accept risks of bodily harm in the use of a product in order to receive the benefits that could not be obtained in less risky ways. But it is those products that are normally considered safe that may be dangerous.

For example, when Mrs. Joe Citizen buys her baby daughter a rattle, she will not intentionally buy one with a sharp projection. However, if the rattle is shoddily made and comes apart easily, and there are sharp objects inside, the risk is more than Mrs. Citizen and her daughter should be forced to face.

Many states, including Florida, have outlawed fireworks but they are still available in some states. Furthermore, due to different state laws, interpretation and enforcement, the danger is still present in many communities. Mr. Joe Citizen will not endanger his son by giving him fireworks. This is an obvious danger that no one in Florida has to face. But fireworks are brought in from other states and certain items, such as sparklers, are still on the Florida market.

Other dangers which are common and about which people should be warned are:

- glass doors and walls; many people have been cut when they walked through a glass door that they thought was open;
- gas-fired floor furnaces with temperatures of 300 to 350 degrees have burned children and adults for years;

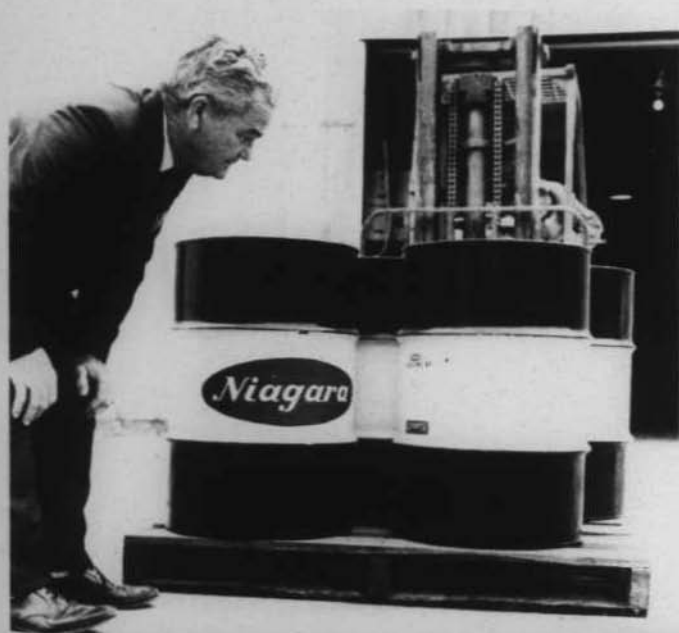
- glass bottles with walls too thin or weakened by a scratch or bruise can splinter when under pressure from carbonated beverages;
- "high-rise" bicycle handlebars have caused unnumbered cheek and facial injuries;
- rotary lawn mowers have thrown objects with tremendous force and injured the operator or persons standing nearby;
- toys, such as little ovens, guns, lawn darts, can burn, pierce or poison a child; and
- wringer-type washing machines can snag and crush a hand or strangle a child or adult.

The New Florida Law

Florida is one of the first states in the United States to have a hazardous substance law within its state health agency. The act covers materials, substances or mixtures that are

- toxic, corrosive, an irritant, a strong sensitizer, flammable; or
- generate pressure or heat through decomposition; or
- capable of causing substantial personal injury or illness in the customary or reasonable foreseeable handling or use, including ingestion by children. The law also covers any toy or article intended for use by children.

The law does not cover pesticides; fuels for cooking, heating or refrigeration; and nuclear materials that are already covered by law.



HAZARDOUS SUBSTANCES — A county health department sanitarian checks the labels of toxic substances at a Florida warehouse.

According to the Statute, products are said to be dangerous or contain hazardous substances when they fail to bear a label that states the name and address of the manufacturer, packer, distributor or seller; the common name of the chemical (if there is one); and signal words, such as DANGER on substances that are extremely flammable, corrosive or highly toxic.

The word WARNING or CAUTION must be used on labels of hazardous substances and the principal hazard, such as "Flammable", "Vapor Harmful" or "Causes Burns" be placed on the label. Instruction on the use, handling and storage of such products must also be included.

The health agency, once it has determined that a product or substance is of imminent danger to public health and safety, can declare such article to be a misbranded hazardous substance and require that it be removed from sale to the public. Merchants cannot alter, mutilate, obliterate or remove a label or any part of a label of a hazardous substance while it is in the store or being sold. This would result in misbranding — which is also illegal. The giving of a guarantee that is false, the failure to permit entry or inspection of the premises or products by authorized persons, and the re-use of containers for hazardous substances are also prohibited.

Staff members of the Division of Health, upon the presentation of credentials, may enter and inspect factories, warehouses or stores where hazardous substances are manufactured, processed, packed or held for introduction into the marketplace, and obtain samples of such materials, packages and labeling.

The health agency can also disseminate information regarding hazardous substances that may be of danger to people's health.

The Untutored Consumer

Public health officials believe that consumers have little knowledge about product safety. A safety engineer, who is looking for hazards in a television set, would not test certain parts without proper equipment and precaution for fear of being electrocuted. The untrained consumer often takes less safety precaution and still less is taken by children who cannot understand the simple dangers of a product. Those persons with limited education are the worst informed about product safety and the least likely to be aided by proper labeling.

Essential steps in product safety depend a great deal on the manufacturer's ability to anticipate possible uses and misuses of his products, and to identify the potential risks to the buyer. He should give

the retailer and the consumer effective information about those risks and the essential safeguards.

When a manufacturer does label his product with the instructions for safe use, the information is too often misinterpreted, lost or forgotten. People expose their limbs to machinery when they are making adjustments or repairs; they act upon impulse or try and save time or effort without regards to recognized hazards.

Consumers frequently ignore labels and warnings. The frequency of incinerator explosions is an example of the ineffectiveness of the present labeling of aerosol cans. A warning label should be conspicuously displayed and not just a part of the general information. Containers and packages, perhaps, should carry such symbols as

- a skull and crossbones — if the product is toxic;
- a flame — if the material is flammable;
- an exploding ball — if the material is explosive; or
- a skeletal hand — if the material is corrosive.

The consumer does not realize the need for careful handling, use and storage of hazardous products in and around the home. Often the hazard comes to light only as a result of injury arising from its use or accidental misuse.

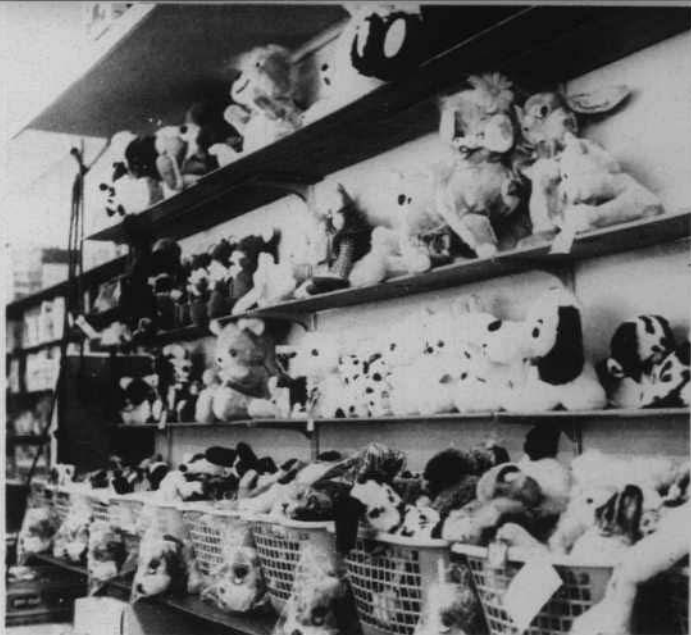
The consumer often assumes that protection from hazardous products is guaranteed by governmental action, even when no law covers the product. Sensible precautions are necessary in the unavoidable handling of hazardous products — such as knives, lawn mowers, matches, gasoline. There are no standards for sporting equipment, non-electrical toys, swings, laundry and cleaning products, slides, seesaws, venetian blinds, hand saws, windows, chairs and tricycles.

Electrical appliances, toys and razors are covered under an underwriter's laboratory code; some bicycle manufacturers have standards but they are not directed at primary hazards, such as handling, stability, protrusion or visibility. Products that are imported are not covered by standards, and frequently, such imported toys are found to be dangerous (a rattle from Japan with sharp needle projections inside), and poisonous (such as Mexican pottery with lead-based paint).

The Protection Network

In the absence of standards or the presence of ineffective standards, the Division of Health is installing a program to protect the people of

STUFFED TOYS — Even stuffed toys can be dangerous for very young children. They sometimes pull off and swallow the toy's eyes, or the toy may come apart revealing sharp projections.



Florida and the 22 million tourists from hazardous substances and products. The long-range objectives are to reduce in number and severity the injuries arising from consumer products; to inform the public as to the safe manner in storing, handling, using and disposing of hazardous products; and to protect the consumer by

- withholding extremely hazardous products from general use;
- improving the safety features of products by redesign or other action; and
- informing — through labeling and other means — the consumer of the hazards of the product and measures for its safe use.

Short range objectives include:

- determining what products are too hazardous for household use or use by children, and remove the products from the market;
- setting up an adequate reporting system on injuries and their causes and finding those products involved, and establishing priorities for correcting the hazards;
- establishing and strengthening consumer education in safe use and handling of hazardous products and the necessity for storage of such products beyond the reach of children;
- conducting industry workshops as a means of obtaining cooperation by industry in producing and marketing safe products; and

Reporting Food Poisoning

People who become ill after eating in a restaurant may unknowingly stymie an investigation of food-borne illness. They may call the restaurant and complain about being sick. The establishment may then throw out the food and that is the end of the investigation. If the person involved would contact the county health department, the health agency would try to obtain samples of all the foods they had eaten and send them to the laboratory for testing. Should poor food handling practices be involved, the county health department can then help the restaurant to avoid future food-borne illnesses.

- establishing a surveillance system to obtain data on product formula, design, function and labeling.

When Mrs. Joe Citizen's daughter is burned on her toy stove, what can Mrs. Citizen do to prevent future trauma for herself and others?

She can remove the toy from her daughter's use, notify the county health department, and perhaps, return the toy to the merchant from whom she bought it. If her daughter is burned badly, she should be taken to the hospital. The institution will make an accident report and send it to the county health department.

The county health department sanitarian or public health nurse will make a visit to Mrs. Citizen's home to investigate the accident. A report will be forwarded to the Division of Health. Should the toy be deemed as hazardous, the state health agency will inform the 67 county health departments of the incident and ask that merchants remove the toy from their shelves.

The Division of Health also notifies the Federal Food and Drug Administration — which in turn informs the other states. A sample of the toy may be obtained from the manufacturer and tested in federal laboratories.

The Division of Health's laboratories carry on a support program to test hazardous substances. This consists mostly of identification of ingredients and the testing of toxic materials and bacteria contamination.

The Day of the Consumer

Only in recent years have governments become interested in the protection of the consumer from hazardous substances and products. Modern technology has changed the methods of production, distribution and utilization of products. These changes have transformed the relation

of buyer and seller and created a demand for new regulatory methods and policies.

The doctrine of "let the buyer beware" (*caveat emptor*) even in its most corrupt form, was never a license for seller irresponsibility. Through the years, the vendors in direct contact have been held responsible for a buyer's injury by a defective product. In the past, most of the products that changed hands were simple, but even today's toys are complicated machines operated by mechanical, electrical or thermal means.

However, in mass marketing, the manufacturer is rarely in direct contact with the consumer. In the absence of direct relations — known to common law as "privity" — manufacturers were practically immune to claims for damages to consumers. In 1916, an American court — in a landmark decision — held that a manufacturer not in direct relations with a consumer could be held responsible for negligence leading to injury. But under the best circumstances, the attempt by a consumer to obtain compensation for injury from a defective product is a bruising and heartbreaking affair. The consumer must prove the product was defective at the time it left the factory, that the product caused the injury, that the suit lies within the statute of limitations, and so on and so on. Meanwhile, the manufacturer can employ a battery of attorneys, stall, appeal to a higher court; and the consumer waits and pays.

Today the consumer has the backing of local, state and federal governments in his battle for safe products. Manufacturers of home appliances, bicycles, homes, gas and many other products have banded together to set standards. A number of private laboratories also evaluate products on the American market.

Federal and state laws on hazardous substances, refrigerators, traffic and motor vehicle safety, flammable fabrics, pesticides and other poisons, and radiation have helped protect the consumer. The National Safety Council (a private organization) and the National Commission on Product Safety (a federal commission) have tested and promoted education on hazardous products.

SAFE FOODS — SAFE PRODUCTS

The Division of Health, in its efforts to accelerate its program on food hygiene and initiate a program on safe products, is asking for additional sanitation consultants and support personnel.

The magnitude of the food hygiene field — with over 33,000 food establishments — requires people to help unify, standardize, interpret and apply the **Florida Administrative Code**.

The new, vital program in safe products will need personnel to build up a wide fund of knowledge on hazardous substances, compile the material into a useful collection, and disseminate information to the county health departments on a continuing basis. This "preventive medicine program" is badly needed to teach people how to properly store hazardous materials, protect infants, children and other high-risk segments of the population, and remove such materials from the marketplace.

Mr. and Mrs. Joe Citizen need to be protected from unsafe foods and products. The Division of Health needs the support of Floridians to carry out this work.

IS IT THE PROPER TEMPERATURE? —

The food coordinator and sanitarian check the temperature of a dairy counter in a supermarket. Such foods need to be kept at 40 degrees or lower as they will quickly spoil.



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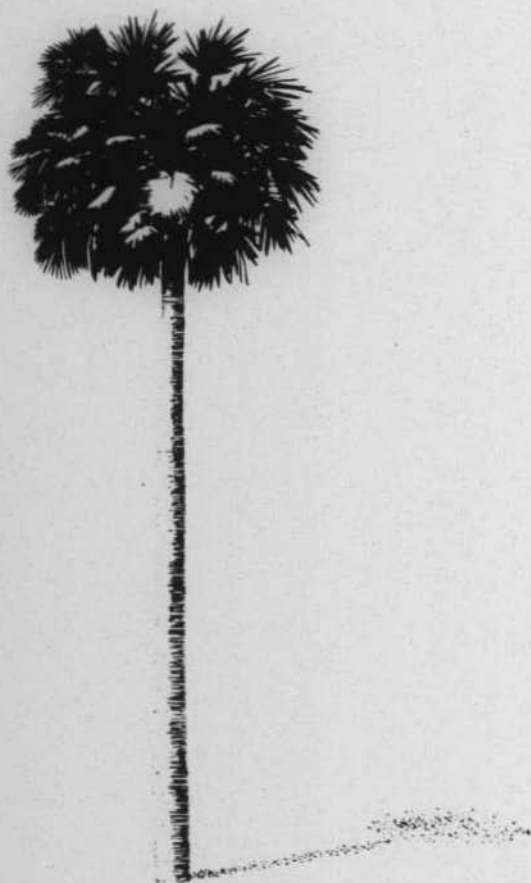
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**Division of Health
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FLORIDA HEALTH NOTES



VOLUME 63 NO. 3

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**HEALTH of the
Migrant Farm Worker**

FLORIDA STATE LIBRARY

BACK-BREAKING LABOR (Cover photo) — Some of the migrant farm workers who follow the crops from state to state pick bell peppers in a south Florida field.



FAMILY WITH PROBLEMS — A community health worker listens as a migrant woman describes her problems: a broken water pipe, no transportation to the clinic, the search for a new place to live.

HEALTH of the MIGRANT FARM WORKER

What is a Migrant Agricultural Worker?

His temporary home may be a shack in a field, several miles from paved roads. He may spend his days at back-breaking labor. He, or his entire family, may leave Florida part of the year to pick apples, tomatoes, or harvest potatoes or strawberries in another state. Or he may move to the next county to pick oranges.

His children may work with him in the fields, neglecting their schooling. His health may be poor from neglect, ignorance and superstition.

He and his family may make a living wage in one day — but then they may have to stretch it out to cover times when they have no income.

He may be black or white; red or brown. He may be American, Puerto Rican, Cuban, Mexican, Mexican-American, Afro-American or West Indian.

But a migrant farm worker is a human being with all of the virtues and shortcomings of any man. Most of these agricultural workers are hard working people, able to take care of their families, believe in sending their children to school, save their money for lean days, and are industrious. The majority of the migrant farm workers need help with their social and medical problems, with their housing and environmental health needs. Many organizations try to help these people. Such groups include church and educational organizations, legal societies and governmental agencies — local, state and national.

This issue of **Florida Health Notes** takes a look at the migrant farm worker, his problems, the assistance that is presently available from

the county health departments, the Division of Health, and the Department of Health and Rehabilitative Services, and what the future may bring him.

Crop Specialization and Migration

The migration of the farm workers back and forth across the United States began before the turn of the 20th Century. As early as 1901, farm laborers from the South were being used in New England states and migration from crop to crop and from area to area had become an established pattern for thousands of people.

In those early days, most of the movement was from Georgia and Alabama to Virginia and Southern New England, New York, New Jersey, Michigan, Ohio, Indiana and some midwestern states in which crop specialization had started to develop. In the 1920's Florida started production of specialized crops, and because of the long growing season the migrants began spending more time in the Sunshine State and began calling Florida "home."

The Florida crops consisted of beans, peppers, potatoes, celery, tomatoes, sweet corn, strawberries — vegetables and fruits that required hard physical labor to pick. Other crops which required the itinerant farm worker were citrus and other tropical fruits. These also required hand-picking.

In the beginning, most of the migrating farmers came from Alabama, Georgia, South Carolina and Mississippi where over-worked and depleted soils, mechanization and new agricultural technology made the farm workers' employment less secure. A surplus of farm laborers, combined with recruiting by crew leaders who held out promises of riches and easy living in the migrant camps, were responsible for many of the workers going into the migrant stream.

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CROP SPECIALIZATION

— Florida produces much of the fresh vegetables for the nation's tables and such crops as tomatoes require picking by hand.



In recent years, Puerto Rican workers, some entering the United States through Miami and some through New York and New Jersey, have become part of the seasonal farm population. Mexican-Americans also have found their way into the Eastern United States north-south migration because of adverse crop conditions and mechanization in Texas and many Mid-West states.

Seasonal farm workers differ from migrants in that they do not move from their regular homes while in pursuit of their agricultural employment. A migrant worker is defined as a worker who works primarily in agricultural or seasonal industry, must establish one or more temporary residences away from the place he calls home. This definition also applies to his dependents who may, or may not, move with the worker.

At one time, over 100,000 migrating farm workers wintered in Florida annually. But due to mechanization of some crops, such as potatoes, radishes and southern peas, there has been less work for these people. In the 1968-69 season, there were only some 78,000 itinerant workers in South Florida. The use of machines in the harvesting of celery, sweet corn, tung nuts and tobacco increased in recent years, but the labor displaced by the machinery has been absorbed into other jobs. Crops that need delicate handling, such as citrus for the luxury market and tomatoes for the table, must be picked by hand or the trees or vines picked over several times. So, there will always be work for some migrant farm workers.

When the harvest season ends in April and May, some 40,000 to 50,000 surplus farm laborers, many of them Florida residents, leave the state with their families each summer. They follow the spring crops up the east coast to South and North Carolina and Virginia, continue in June on to Pennsylvania, Maryland and New Jersey, and into New York in July. Many of the Florida based crews are employed in the apple harvests in New York and Virginia in September and October, and work their ways back to the Carolinas for the late fall vegetable harvest.

There is also a significant number of migrant laborers who go to the Midwestern states where they harvest vegetables, cherries and apples.

The Itinerant Worker, His Family and Crew Leader

Although the itinerant farmer may come from a variety of places, he may consider Florida his home. If he goes North to follow the crops, he may leave his family behind. This, perhaps, leads to a more stable family situation and the family becomes a part of the community.

Should the family make the decision to go North, it may "sign up" with a crew leader. This is a decision that the migrant families must make each year. The labor contractor furnishes the trucks and buses for the journey; the families take their personal belongings of foot-

A DAY'S PAY — Field hands are paid off at the end of a day's work. They may have had a good day in the fields, but their incomes are not steady enough to maintain a good standard of living.



lockers, metal suitcases, cardboard boxes, oil stoves, ironing boards, mattresses, card tables and washtubs.

The crew travels day and night. It usually does not have money to stop for a night's rest and sometimes it does not have money for food. It receives no welcome in stores and service stations along the way. Residents in the areas through which migrants travel have a general distrust of the itinerant agricultural workers. Those who travel by private automobile frequently have to spend their short supply of cash on car repairs because the cars are rarely new or in good condition. A few of the more affluent migrant families travel with trailers that serve as their homes on the road and while working in northern fields.

The worker's family usually has several children. Many of those who are old enough go into the fields with their parents to pick crops and add to the family financial resources. Some parents believe that school is a waste of time and frequently it is up to the children themselves to seek an education. However, many parents are beginning to value education and are returning earlier from the North to enroll their children in school.

Many of the workers enter the nomadic life because of promises made by a recruiting crew leader of a "fast life" on the road or riches in the fields of South Florida. The labor contractor may then transport the workers throughout the season and serve as middleman between the laborers and the employers or growers. The arrangement between the workers and the crew leader may be very loose with the crew leader merely acting as overseer; or the crew leader may "carry the migrant over," loaning him money when there is no work. The worker then reimburses the crew leader from his "pickings."

The labor crews, which are seen in the northern fields, are beginning to operate more and more in Florida. In order to obtain workers, many growers send trucks or buses to central loading points in urban areas where the workers live. At these loading points, day leaders inform the workers what the growers are paying to pick a crop, and, if the workers like the wages, they are then hauled to the fields. But day haul labor is now on the decline.

The success of the growers' operations depends first of all on the prices; secondly, on the weather; and thirdly, on the availability of

labor. An untimely frost or prolonged dry or wet spell can — and often does — ruin a crop. Fluctuations in market prices may make a crop very valuable or even a few hours later — completely worthless. It may be good only for plowing under.

When the crops are damaged, or the price is not high enough to make them worth picking, the workers also lose money. The itinerant farm worker and his family may face hunger and loss of shelter when their source of income is gone. When a hard frost hits the crops, they are affected the most. Frequently, private organizations and governmental agencies have to step in and help them.

The quality of labor also varies. The crews may consist of conscientious, reliable workers, or they may include individuals who will work only when hunger makes it necessary. The crews may be complaining or become disgruntled about working and housing conditions, or even about the weather, and desert both the crew leader and the grower.

Florida's Migrant Health Projects

The migrant agricultural workers have been traveling north and south since before the beginning of the century. Florida's public health programs, that were developed to help the itinerant workers with their health problems, have been in operation for less than 20 years. Periodically, the plight of the workers has been the subject of nationwide publicity. Unfortunately, public interest and support has also been erratic.

The State Board of Health (now Division of Health) and the Palm Beach County Health Department set up in 1954 the first project to define the health needs of the migrants and to develop programs for meeting those needs under a grant supplied by the old U. S. Children's Bureau. This project gave insight into the problems of the workers and the manner in which these problems could be met. Two monographs of the State Board of Health, **They Follow the Sun** (1957) and **On the Season** (1961) resulted from this work carried on by the state health agency and the Palm Beach County Health Department.

In 1956, the Children's Bureau supplied the funds for a five-year "Migrant Project" which would provide a multi-disciplinary approach

to migrant health needs. Palm Beach County was a prime example of "migrant territory" with much of the county's 2,700 square miles devoted to agriculture, and the presence of some 20,000 or more native farm workers and several thousand additional British West Indians, Mexican-Americans, and Puerto Ricans who harvested the vegetable, citrus and sugar cane crops.

The first state-wide migrant health project was started in Florida in September 1963. The first year was more or less a planning stage during which necessary information was gathered to implement the following years' "action programs." Ten counties comprised the nucleus of the state project during the second year of operation and over the years several counties have joined and dropped from the project. Although a number of other counties have migrant farm workers, Broward, Collier, Hendry, Lee, Glades, Highlands, Sarasota, Putnam, Flagler, Orange, Seminole and St. Lucie have been the core of the "state project."

The Dade County Department of Public Health has been working to upgrade living conditions and medical services of the migrant workers since the 1950's. Labor camps came under the scrutiny of the county health department in 1953; a few years later clinics were set up in camp areas to give personal health care to expectant mothers, infants and children. In 1969, the county health department's migrant

WAITING TO SEE THE DOCTOR — Migrant women and children visit a family health clinic operated by one of Florida's migrant projects.



project gave service to nearly 12,000 itinerant farm workers and their dependents; over 5,000 were seen in public health clinics. However, the county health department's project was not refunded by the Federal Government in 1970.

Personal Health Services for Migrants

Providing medical services for some 78,000 itinerant agricultural workers is not an easy task. Because of limited education, superstition, and fear of strange surroundings and people outside their own group, many of the farm laborers fail to take advantage of the services provided by the Division of Health and the county health departments.

Transportation is a vital factor in getting the migrants to the public health clinics, hospitals and other agencies for needed medical care. Many times the availability of transportation determines the extent of care the migrant and his family receive. Collier County Health Department operates a bus that takes children and adults to clinics and medical specialists as far as 125 miles from the health center in Immokalee. Other counties also provide some form of transportation for migrants.

The migrant agricultural workers are given comprehensive health care by the county health departments in addition to preventive medical services that includes communicable and venereal disease control; tuberculosis control; maternal and child health services; family planning; immunizations, and school and dental health services. Patients in the migrant clinics were treated for burns, gunshot and stab wounds as well as receiving treatment for congestive heart failure, cancer and other acute and chronic diseases. Because of the migrancy, the illnesses are more severe and of longer duration than the rest of the population. Infant deaths are 20 per cent higher than the national average; maternal deaths are 30 per cent higher; tuberculosis, respiratory and other infectious diseases run some 200 to 250 per cent higher; and the migrant death rate from accidents is 300 per cent above the national average.

In an effort to eliminate the duplication of health services given by other agencies, county health departments have developed mutually satisfactory systems of referrals and exchange of information with VISTA workers, Offices of Economic Opportunity, Headstart programs,

HE HAS A COLD! —

A physician checks a youngster in one of the migrant clinics that gives comprehensive health care. Illnesses are more severe and of longer duration than in the regular population because of the migrancy.



local civic organizations, farm bureau personnel, and such local and state agencies as the county welfare departments, Division of Family Services, Florida's Council for the Blind, and the Crippled Children's Commission.

Many county health departments find that evening clinics are well attended; others find that no one shows up at night clinics. Because the workers usually spend long hours in the fields, they are reluctant to go long distances to seek medical care. A number of county health departments take the evening clinics to the migrants — holding the clinics in a central location — at a packing house, in a labor camp — within walking distance of their homes. St. Lucie County Health Department holds two medical and one dental clinic a week in areas where the workers live. The office is open during the day for making appointments, giving assistance to the sick, aiding the newcomer to town in any way possible, and telling those eligible of the service available. Lee County Health Department, under its migrant health project, operates five night clinics and one evening dental clinic a week.

The medical problems of the itinerant farm worker and his dependents are similar to those found in other segments of the Florida population. During the winter months physicians and clinicians observe a large number of sore throats, colds, respiratory diseases. Other conditions affecting the migrants are infectious diseases and parasites, diseases of the skin, digestive and circulatory systems. The migrants

suffer a higher incidence of such chronic diseases as diabetes, hypertension, heart disease and accidents than the resident population.

Schools and day care centers in the areas where the workers live are visited by public health nurses. Here the children are screened for vision, hearing and dental defects, skin disorders and general health. Those conditions that need attention are referred to medical specialists or other clinics.

Hospital services are provided on a contract basis with the migrant projects in some Florida counties. In some cases, physicians donate many hours to medical care for the workers. Since funds are usually short in supply, only emergencies are given attention; maternity cases are delivered; and children usually admitted to the hospitals. Little elective surgery is performed. Because migrant clinics give early treatment, especially among children with respiratory infections, few of the workers are seen as hospital inpatients.

Florida originated and participates in a "migrant health service referral system" that is aimed at giving migrants continuing personal health care as they follow the crops north and south. Continued medical attention is especially important in prenatal care, diabetes, tuberculosis, family planning, and many communicable and chronic diseases.

When a patient is seen in a Florida clinic, the public health nurse tries to find out where the worker is going — to New York, Michigan, Virginia. The county health department sends a referral to the health department of that state; there a public health nurse tries to contact the worker to urge him to continue medical care started in Florida. Most of the time, the referrals are sent, the worker contacted, and the medical care given within two months.

The states with which most of the referrals were made in 1968-69 were Virginia, New York, New Jersey, North and South Carolinas, Michigan, Maryland and Texas.

Nutrition Services for Migrants

Food is important to all men, especially to those engaged in hard manual labor. Through medical care facilities, public health workers have discovered that the major nutritional problems found in itinerant

farm workers are iron deficiency anemias, especially among pre-school children and pregnant women, and obesity, especially among the middle-age migrant women. A study of diets of prenatal patients seen in health department clinics reveals that the women eat insufficient amounts of foods that supply such important nutrients as calcium, iron, Vitamins A and C. Some migrants have been found to have diets that give only one-half of the recommended daily dietary allowances of nutrients as established by the Food and Nutrition Board of the National Research Council.

General deficiencies in diets are due, in part, to poor kitchens and storage facilities available in migrant housing. Many of the less adequately equipped camps and individual family dwellings do not have stoves and refrigerators for food preparation and storage. Other factors that contribute to inadequate diets are

- inaccessibility to competitively-priced food stores (many of the camps and single dwelling units are in rural areas miles away from town and served by a single store);
- undependable incomes;
- the unavailability of commodity foods, food stamps or community assistance to migrant families in need;
- lack of transportation;
- fatigue after long days in the fields;
- lack of food preparation;
- lack of home management skills; and
- lack of education and motivation.

The itinerant farm workers often eat foods to which they are accustomed and which fit into their cultural background. Sometimes familiar foods are not available in the areas in which they live, and they may select substitute foods of lower nutritional value. They harvest fruits and vegetables that would supply them with many nutrients missing from their diets, but they fail to include these vegetables in the foods they eat.



WHAT DID YOU EAT TODAY? — A nutritionist asks a girl who participated in the Division of Health's "migrant nutrition survey" what foods she had eaten during the day. This is termed a "24-hour recall."

Sometimes when a family rises before dawn to catch a bus for the fields, there is no time to prepare an adequate breakfast for the family — especially for the children. In the fields, the adults and children may purchase snack lunches and carbonated beverages from a vendor. In the evening, the women may be too tired to prepare an adequate meal. Sometimes, the only nutritionally adequate meals that the school-children may have are the ones they receive in school.

To help provide a solution to the migrants' nutritional problems, the Division of Health's nutritionists

- give basic instruction on foods that will meet the needs of workers' families to groups and individuals in family health clinics and schools;
- give demonstrations to groups of workers and their families on easy and sanitary preparation of low cost, nutritious foods, especially the use of the commodity foods which may be a welcome change from the same basic diets;
- provide diet counseling to maternity patients, mothers with young children, persons with diabetes, obesity, heart condition, or some other disorder; and

- give consultation on nutrition and diet to professional and non-professional staff members of county health departments, schools, day care centers, community action programs, churches and other interested groups which will extend the nutrition education to migrants and their families. The public health nurse, school teacher, and community aide are the workers most frequently involved.

Assistance is also given to migrant day care centers on how to plan meals and how to use donated foods.

Dental Care for the Migrants

Due to the shortage of public health dentists and money, not all of the county health departments are able to supply dental care to itinerant farm workers. Some of the counties have mobile units that travel from one area to another; a few have permanent dental facilities.

The priorities in dental care are the relief of pain, treatment of dental caries and infections. Treatment usually consists of extractions, fillings, gum treatment for pyorrhea, and cleaning. Physicians, nurses, dentists and dental assistants carry on dental education with the agricultural workers, teaching them how, when and why they should care for their teeth, and giving instruction on how to brush. Some county health departments furnish toothbrushes during the patients' first visits.

Many times the teeth of the adults are so badly decayed that even the patients' mouths are in need of care. The county health departments are not able to provide orthodontic services for teeth straightening and correction of bite.

Sometimes local private dentists donate equipment and services to the migrant projects. Some provide services only at the cost of materials used; others are paid on a fee basis.

Environment and Housing

The itinerant farm worker and his family is an ever-changing group. They may live in one place for a week — or several months; the family may be composed only of a father, mother and their children; or it may consist of a constantly shifting group of related or unrelated individuals.



DENTAL EXAMINATION — A dentist examines the teeth of a migrant child during the "migrant nutrition survey" to determine the number and quality of her teeth.

Many of the migrant workers are proud, productive people — desiring to help themselves. Some may make \$125 to \$150 a week (per family) when they work, but work is not steady. One of their primary problems is finding good, sanitary housing. There is a constant struggle to find shelter — much less good living accommodations. When the workers' families do not have a building in which to live, they may camp beside a canal, in their cars, buses or large boxes.

The migrants are short-term, temporary renters who may be in the area for only three or four months. They have a tendency to crowd more than one family into a house. They are fluid in their living habits. Families may move from crew to crew within the same camp. Large families are the rule — with many families having over six children. They are poorly educated, which makes communication difficult. While children are usually thought to be destructive, adult migrants probably cause more damage of property than their children. For example: a grower in one south Florida county built a camp for the workers' families at a cost of several thousand dollars. Before the harvest season was half over, he had to move the families out because the buildings were damaged to a point where they were not habitable.

Most camps are either concrete block or frame. The condition of camp buildings in all of the counties varies from poor to very good.

Single family dwellings are usually frame, although new construction may be of concrete block because of lower costs. Older dwellings have been constructed of tar paper, plywood or composition board.

The **Florida Administrative Code** sets the standard for migrant labor camps — whether or not rent is paid. The regulations cover such things as camp sites, types of shelter, water supply, garbage and refuse disposal, insect and rodent control, heating (where temperatures are normally experienced below 70 degrees during the period of camp occupancy), lighting, sewage and liquid waste disposal, plumbing, washrooms, bathrooms and laundry tubs, food service facilities, beds and bedding, fire protection and sanitary maintenance of the premises. The county health departments' sanitarians work to eliminate or upgrade all substandard housing, improve the sanitary condition of food service places serving migrants, and improve the general environment in what is considered the worst private housing.

Sanitarians also work to eliminate the junk cars, accumulated garbage, trash and litter — the trademark of substandard housing areas. However, many times the migrants do not respond to urgings to clean up their premises.

In many cases, large camps are on approved sewerage systems, but, too frequently, the individual family dwellings or small camps are on septic tanks. If they are in rural areas, they may have privies.

In one county, educational efforts by the county health department brought about a change in housing for migrant workers. One labor camp with 150 two-unit, substandard houses was replaced by 100, four-unit buildings containing hot and cold water, modern toilets, showers, lavatories, kitchen sinks, electric stoves, refrigerators and space heaters. Sanitarians visit the workers' homes to discuss the problems of personal hygiene and basic environmental health (screening, insect and rodent control, food handling) rather than limiting themselves to routine inspection of housing for housing's sake.

In Palm Beach County, over \$25 million has been spent in the last six years to provide decent housing for migrants. Within the last two years housing authorities have spent \$10 million providing new and remodeled housing to replace camps condemned by the county health

POOR MIGRANT HOUSING — Trailers set up on a lot in "the quarters" are rented to migrants by town's people. Frequently, such housing does not have adequate sanitary facilities.



department. Also, a large sugar company spent over \$4 million to replace domestic migrant housing units condemned by the health agency.

A new program of recent years has been self-help housing for the itinerant farm worker. This gives stability to him and his family because they buy the home they build. Several families frequently work together to build their homes; materials are purchased by money from a federal agency. Frequently the worker finds that the payments on these concrete block, fully-equipped homes are not any more than the rent on a shack. When the migrant family is fortunate enough to get into good, low income housing, it seems to give the members a new outlook on life. This appears to stimulate self-respect and the family tries much harder to assume the responsibility for its own needs.

Only camps that contain 15 or more persons, including children, are inspected for permits by the Division of Health on the recommendations of the county health departments. Another state agency grants permits to multiple dwelling units, apartments and boarding houses; no permits are required for privately-owned single family dwellings. A small number of migrants still live in non-permitted camps which sanitarians are trying to upgrade or have condemned. In recent years, scattered trailer settlements are springing up to house the workers. These are usually single family units and do not come under the regulations which the Division of Health enforces. Sometimes these single units are owned by town's people. The landlords collect the rent but often fail to supply such necessary facilities as flush toilets, sinks and stoves.

Some of the counties and cities of Florida are enacting housing codes and the enforcement of these are bringing improvement to migrant

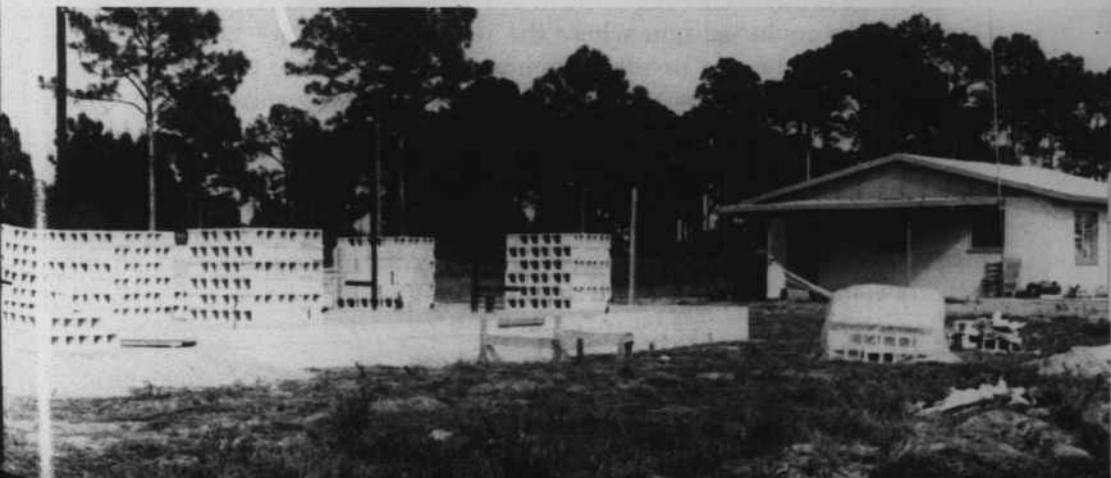
housing. This improvement can be attributed to housing surveys made by county health departments which brought to the attention of local governments the conditions that existed in some areas. In addition, improvements are the results of

- better education of migrants on how to take care of their own property — as well as that of the landlord;
- development of community improvement associations;
- development of government-sponsored housing programs; and
- more rigid enforcement of building and zoning codes.

Many of the migrant camps formerly occupied by single workers are being converted to family units. But in the opinion of some public health workers, the trend is toward private and rental housing instead of labor camps. The workers do not like to live in a camp far from town, but will seek housing in a town, or on the borders of a city, where they can be near the "bright lights." The people of different nationalities or racial origin rarely mix. The blacks work, live and associate with their own race; the Spanish-speaking migrants frequently seek their own people. The local blacks do not associate with the migrants and there is a strong social barrier which the migrant feels very keenly.

Food handling for field hands has always been a problem. Some camps have field kitchens that prepare food for the workers; many use local food stores. Drinking water is obtained from a variety of places

SELF-HELP HOUSING — A few blocks from the trailers (opposite page) migrants are building new homes for themselves. They are finding that payments for these homes are not any more than rent on a shack.



and may be contaminated by unsanitary water coolers or by the use of a common cup.

Providing toilet facilities for workers, while they are in the fields, is also a problem. Some farmers have chemical toilets available, but pump-out trucks have difficulty getting into the fields when they are wet. Many times the growers merely lease the fields, and they are reluctant to build sanitary-pit privies (complete with concrete base and risers with fly-tight seats) because of the expense involved and the workers are in the fields only a short time. While progress is being made, the workers often find it necessary to use the bushes lining the fields.

The Migrants' Social Problems

There are many problems observed by public health workers that relate to the migrants' mental and physical health. County health department personnel frequently play the role of "Big Sister," "Financial Adviser" or "Father Confessor" to migrants.

One day, Mrs B, a public health nurse, was called upon to determine the exact location and condition of an infant whose mother had been in the hospital. During her absence, the infant was passed from friend to friend for several days. An alert and understanding individual recognized that the infant was ill and sought help. In the meantime, the mother had been released from the hospital and walked a half-mile in the hot sun to the health department clinic to inquire about the infant. After making several telephone calls, Mrs. B. was able to locate the hospital where the baby had been taken.

At another time, public health workers helped a young man find the body of his mother who had died of cancer. He had learned of her death three days after it happened. He first went to the nursing home where his mother had been, then to the hospital where she had died, but no one could tell him where the body was. County health department personnel made several telephone calls and found that the mother was about to be given a pauper's burial. Another county agency was notified that there were family members looking for her and there was insurance to pay the cost of the burial.

A typical request from migrants is, "I have to be at the hospital for x-ray treatment at 10:30 tomorrow morning and I have no way to get there. Can you find somebody to take me?"



TOWN OR COUNTRY — Migrants frequently prefer the "bright lights" and urban housing to migrant camps built by growers in rural areas. Housing codes are bringing improvements in migrant housing.

County health department personnel answer as many of the requests as they can. Many times the problems are complicated by drugs, alcohol, language barrier and difficulty of communication.

Too often there are problems with which the county health department personnel cannot help. Young children lack supervision and are frequently seen playing around abandoned automobiles in a migrant camp. Some workers make little effort to send their children to school. When the fields are checked for school-age children, they appear in the camps — or take to the woods — having been forewarned that the fields are under observation or to be visited by a truant officer. The children must have a physical examination to enter school in some counties and the migrants frequently do not have the money or are not interested. If the children do not go to the fields, they just play in the streets while the families are away.

Family type recreational facilities are urgently needed in many migrant areas. These facilities should emphasize family involvement and this could probably reduce the number of bar-room brawls which result in financial loss for the families and hospitalizations. These brawls are not conducive to good emotional environment for children and could lead to possible delinquency among teenagers.



PLAY AREA — Children romp in the cluttered surroundings of a migrant home. Frequently, these homes do not have cooking or bathing facilities. Sometimes more families than one live in a single room.

Health Education Among the Migrants

Health education is one of the major steps necessary to raise the standards of living, nutrition and health of migrants.

The language barrier between the Spanish-speaking workers and county health department personnel is often difficult to bridge and many times it involves a third person as an interpreter. In addition, the low educational level of the itinerant farm workers, superstition, and fear of outsiders, including the physicians and nurses, aggravate the problem.

Physicians, public health nurses, sanitarians, nutritionists and health educators, where available, carry on health education with the workers. This may consist of showing films on health in clinic waiting rooms, and explaining to individuals and groups the reasons for garbage collection and disposal, proper sanitary handling of foods, the importance of good drinking water, good housekeeping and rodent control. In one county, a demonstration project is being conducted by sanitarians and community health workers to teach the proper use of pesticides, cleaning materials and tools. Initial supplies of these materials are provided to the migrants.

Lessons may be taught in how the housefly contaminates foods; the health dangers of flies, rats and vermin; how water can be contaminated; and the need to use proper bathing facilities after they are provided.

Health educators and sanitarians also work with farmers and growers to stress the need for basic shelter, toilet, bathing and dishwashing facilities. The growers and camp owners are taught that the lack of supervision in camps is the cause of the greatest problems.

Literature on all subjects pertaining to health is used, including: nutrition, family planning, personal hygiene and care of the newborn. Health education is of tremendous importance and every person in the migrant projects and county health departments — from the physician to the community health worker and clinic aide — are health educators. Actually, every time the staff members wash their hands in front of a patient, they are teaching health.

The Migrant Nutrition Survey and Outreach Program

The Division of Health has a survey underway in which the diets and physical conditions of migrants are being studied to determine the specific kinds and amounts of malnutrition and related health problems that may exist. The study will be followed by the development of a more comprehensive and motivating nutritional program as part of the migrant health projects. The aim is to improve and correct major food and nutritional health problems identified by the survey.

Funds for the survey are supplied by the National Center for Disease Control. A participant is defined as "an agricultural worker who crosses state or county lines seeking employment in seasonal agricultural activities." The survey is intended to round out information obtained by a nutritional survey conducted by the National Nutrition Survey in 10 states (not including Florida). Two questions were left unanswered by this earlier survey: the nutritional status of migrant workers and Indians. Florida is the logical place to conduct a "Migrant Nutritional Survey" because the itinerant agricultural workers spend more time in Florida than any other state.

Following a pretesting of two hundred workers in St. Lucie County, 1,500 representative workers from Palm Beach County, and 700 from Lee County are being studied in the survey. Community health workers

visit the migrant families in their homes, making the first contact and setting up appointments for them in the clinics, and if the families do not have transportation, arrange for it. Migrant agricultural workers from both farm labor camps and urban areas are seen during the study.

Participation by the migrants is about 50 per cent of those interviewed in their homes and for whom clinic appointments are made. One of the major problems was to get the workers and their families to the clinics after they had worked long hours in the fields.

At the clinics, the workers and their families are given a battery of tests, including physical examinations, dental examinations, blood studies and x-ray. A study is also made of the workers and their families' food intake and eating habits.

The examinations include:

- clinical histories to determine significant illnesses that could affect the nutritional status;
- clinical examinations emphasizing key lesions or indications of specific nutritional deficiencies; and
- dental examinations to determine the state of oral hygiene, number and quality of teeth, and periodontal conditions that reflect the nutritional status and the individual's ability to eat a variety of foods.

Measurements are taken of adults to correlate their status with obesity; children are measured to find any indication of growth retardation. In addition, the head measurements are taken of children under six years of age, and the hand-wrist bones of children under 18 and women past child-bearing are x-rayed for development of the bones.

Laboratory examinations include:

- urine samples for creatinine and riboflavin; and
- blood samples for hemoglobin, total protein, certain vitamins, albumin and iron.

Nutritionists make a detailed assessment of the amount and types of food eaten by the migrants in the past 24-hour period. Information gathered include:

- where food was purchased;
- how much and what types of food were used in the work fields;
- whether food stamps or commodity foods were used or had been used; and
- the ability of cooking and food storing facilities.

Each individual is asked what kinds of food he usually eats and how frequently he eats them; how does he pay for his food; and, if a school-child, whether he takes advantage of the school food service programs. The migrant women are asked if they had learned anything new about foods in recent months, and what would they like to learn about diets; weight reduction; food buying, preparing and storing; and whether they would take advantage of the lessons if they were available.

The nutritionists found from preliminary assessments of some of the 24-hour recalls that migrants appear to have low intakes of Vitamins A and C in their diet; low consumption of protein from meat; an adequate consumption of proteins from eggs and vegetables (beans); and a high concentration of starch foods and fats. Milk was frequently missing from the diets of adults. Where school breakfasts and lunches

BLOOD SPECIMEN —

A blood specimen is taken during the migrant nutrition survey clinic. Laboratory tests will be made to determine the nutritional status of the migrants.



Leaving the Migrant Stream

Mrs. R, who was born into an itinerant farm laborer's family, tells this story:

"My father was a crew leader in Texas. Our family came to Florida in 1957 and that first year we went north to Virginia and Maryland to pick tomatoes and potatoes. When we traveled north, we spent long hours on the road, traveling day and night. We had no money to stop. We weren't welcome anywhere. When we got to Virginia, there were no camps in which to live. Frequently we would live two or three families in a room; it was even worse in Maryland. Things were better somewhat when we went to Michigan, Indiana and Ohio where we picked tomatoes and other vegetables.

"I married a cattleman who followed the migrant life for five or six years but he didn't like it. Life was not good. Frequently we would run out of work. If there was a freeze, there would be no crops to pick.

"My husband started doing part-time work at a garage in town and one time when we came back, the owner said he would put him on full time. Now he has been trained as a mechanic and he has a good job. We have our own home and we have it very good."

Mrs. R, the former itinerant farm worker, now is a clinic aide in a county health department. Her children attend school regularly and she feels that life has improved since her family left the migrant stream.

Other migrants have stopped following the crops and turned to health work. One migrant woman became a community health worker and is now a clerk in a county health department. Another is studying as a licensed practical nurse after serving as a community health worker and clinic aide.

are offered, the children take advantage of them and frequently, these are the best meals the children have during the week. The migrant workers are less inclined to have "snacks" between meals — possibly because there is not enough money available.

As part of the migrant nutritional survey, an outreach program (follow-up) is being implemented

- to provide information and assist the itinerant farm workers to make use of the available health programs;
- to take nutritional health programs to the labor camps and pockets of urban areas where migrants live; and
- to teach the itinerant farm worker and his family better eating habits.

It is planned that nutritionists from the Division of Health, traveling through the "migrant country" in motorized vans, will give food demonstrations, discuss with the families their nutritional and health problems, and coordinate all phases of the nutrition work. Those with health problems will be referred to the proper family clinic or special agency for follow-up health care.

A re-survey of some 300 individuals will be made in about a year to determine whether there have been any changes in their dietary habits. Blood specimens will be taken and tested to see if there has been any change in the health situation.

Palm Beach County's Outreach Program

In order to improve the environmental and personal health services to the itinerant farm workers, the Palm Beach County Health Department has sent mobile teams into camps and areas where migrants live. Each of the teams is composed of a sanitarian, public health nurse, two or three community health workers recruited from the workers' community; and when needed, health educators, nutritionists and social workers are included. The teams use mobile clinics, or available space in camps and rooming houses, as their bases of operations.

Community health workers selected from the people to be served, frequently act as interpreters and make the initial contact with the families. They make home visits and follow-up clinic appointments, give directions, and interpret plans for health care and referrals. They visit each camp area on a regular schedule to explain the health services and to serve as liaison between the family-centered health services and the migrant workers. Contacts are made with new arrivals; health problems are uncovered; and clinic attendance is stimulated.

The public health nurse is concerned mainly with personal care. She does health evaluations with appropriate treatment and/or referrals, makes assessments of the general condition of the families, gives children immunizations, and refers the family members to public health clinics or private physicians. Services include screening for intestinal parasites and tuberculosis; and glaucoma, hearing and vision testing, as well as for many other problems that can be handled outside the health center. Transportation is arranged or provided. Contact with the workers and their families is maintained so that continuation of care is assured.

The sanitarian looks for problems in the migrant worker's surroundings. He may find it necessary to show the residents of a camp how to repair the screens in their homes, how to fix up the housing with paint, how to clean up the premises, and how to control rodents with poison bait. Should there be serious violations of the **Florida Administrative Code**, he would refer the problem to the sanitarian who has charge of the district. The sanitarian would then talk to the owner or manager of the camp about correcting the violations.

The mobile teams are able to find problems among the workers, diagnose and treat them, where possible, and give counseling. Those



PART OF OUTREACH PROGRAM

— Community health workers, chosen from the migrant community, assist the public health nurses and sanitarians by acting as interpreters and making initial contact with the workers' families.

with additional problems are referred to the Department of Health and Rehabilitative Service's "One-Stop" center, outpatient clinic, emergency room, or the hospital.

The teams also make use of volunteers from other community groups, such as the Community Action Council, the VISTA workers, American Friends, Catholic Diocese, and other organized groups.

The Migrant Project Policy Board

As a basis of improving the relationship between Palm Beach County Health Department and the migrant farm workers it serves, a Project Policy Board (Consumer Board) was organized. Composed of 12 migrant farm workers, or former migrants, who were elected by their own groups, and six members of the Health Department's migrant project staff, the Board was formed to provide guidance in carrying out the aims of the project. Lee, Putnam and Sarasota Counties have "Migrant Project Policy Boards" and other counties with migrant projects will develop them in the near future.

The Palm Beach County Board was asked to seek support for the migrant nutritional survey among the itinerant farm workers; help locate community health workers among their own people for mobile teams; and provide guidance for short-range and long-range actions.

From the beginning, the Migrant Project Policy Board has taken an interest in

- means to improve housing facilities, and in some areas, land on which to build houses;
- education — knowledge of public health measures and medical facilities available to the migrant farm workers;
- clinics — improved clinic facilities; more clinics, especially at night; and better continuity of care;
- child care centers — so mothers who go to the fields can leave their children in safe hands;
- sanitation — improved garbage pick-up, drainage, and rodent control; and

- field sanitation, better use of pesticides, and the development of the out-reach program.

Plans to Help the Migrant Farm Worker

For a number of years, the State Board of Health (now Division of Health) and county health departments received money from federal sources to help provide health care for the migrants. Many times these funds were not enough to provide the necessary basic health care. Sometimes federal funds were not sufficient and the projects had to be trimmed — leaving the migrants without help.

In order to help provide the migrant farm worker with better health care, the Division of Health and the Department of Health and Rehabilitative Services are asking the 1971 Legislature for \$3 million for county health departments' use in migrant projects. This money would augment federal funds which have been trimmed from migrant projects in those 13 or 14 counties that are receiving federal money.

Some of the money will also be used by the Division of Health to start state projects in other counties that have migrant agricultural workers but are not receiving money for projects.

This money would be used to provide medical and dental care, nutritional and environmental services and other necessary health care described in this issue of **Florida Health Notes**.

Knowledge Helps the Migrant Farm Worker

The Division of Health and county health departments have for years seen the need to provide the itinerant farm workers and their families with personal and environmental health care. But the shortage of funds and the lack of understanding and education by the workers and growers have often hindered the continuation of the programs.

Many migrant agricultural workers are becoming more knowledgeable about what is available for them in health care. When programs are being planned, they are being given a voice in the planning. They are learning that they have responsibilities toward their own future, and it is not a matter of what can be done for the migrant farm worker, but what he can do for himself.

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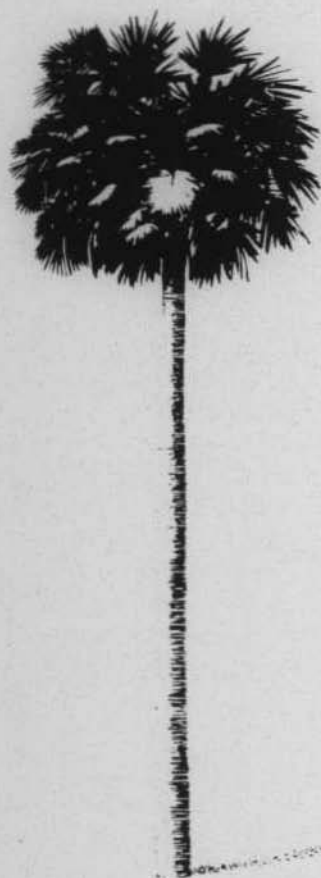
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FLORIDA HEALTH NOTES

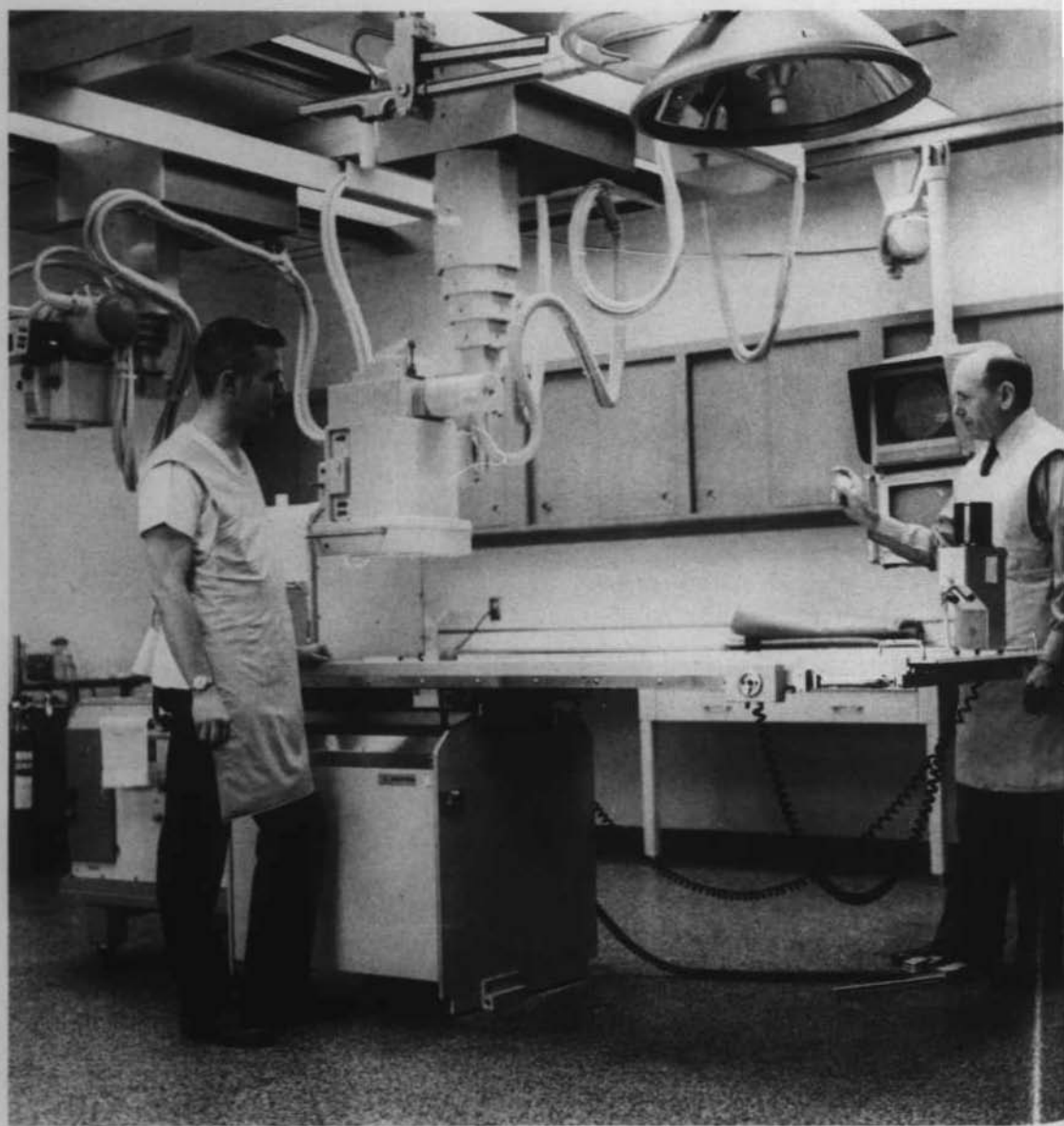


VOLUME 63—NO. 4
APRIL 1971

FLORIDA'S Expanded
Radiological Health Program

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PROTECTING THE PUBLIC (Cover photo) — The purpose of the Division of Health's Radiological Health Program is to protect Floridians from unnecessary radiation. Such work includes a gamma radiation survey of an air-borne contaminated area.



INSPECTION — During an inspection, a Division of Health physicist (right) and a resident radiologist in a hospital prepare to measure X radiation from a fluoroscopic tube at table top.

FLORIDA'S Expanded Radiological Health Program



The Atomic Age began in less than a millionth of a second, ushered in by the blast of an atomic bomb in a New Mexican desert. Since that second, man has blessed and cursed nuclear energy.

Many people still think of the Atomic Age as something far off in the distant future — but the Division of Health and the Florida Department of Health and Rehabilitative Services know that it is here in the present. NOW is the Atomic Age.

Since the detonation of the first atomic bomb, nuclear power has been a threat and a blessing to Mankind. But over the years man has learned to use nuclear power for medical and industrial purposes — for diagnosis and treatment of disease, for driving ships, for generating electricity. Who knows what additional benefits may be derived from nuclear energy in the future.

While there are many uses of nuclear energy, there are many potential dangers and side effects from which the public must be protected. It is the misuse and careless use of radioactive materials and radiation that can harm us.

Incidents that have occurred in Florida are:

- Some 120,000 Curies of Cesium-137 were shipped into Florida on a truck. Fortunately there was no accident, but if the truck had been involved in a crash and the container breached, one minute's exposure to the Cesium-137 would have been lethal.

- A Florida housewife spilled a vial of radioactive material that her son had brought home from school.

- A sixth-grade student was given some radium on the point of a tack to take home and put into a "cloud box." Even this amount of radium is hazardous.

- A physician gave some radioactive materials to a high school student who sent it to a university to have it assayed. The material proved to be more hazardous than the physician thought and the material was returned to the physician for proper disposal.

Most Floridians do not realize that some radiation is a part of their every-day lives. There is radiation all around us. It comes from some radioactive materials in the soil, minerals in some building materials and cosmic radiation which reaches us from the sun. People can assimilate only small amounts of radioactive materials or be exposed to a small amount of penetrating radiation without the definite possibility of some potential damage to their health. It is therefore necessary that all "unnecessary" radiation be eliminated from the environment. It is the duty of the Division of Health to protect people from this "unnecessary" radiation — even from people's own foolish acts that endanger themselves, the community around them, and the environment.

Three years ago (April 1968), **Florida Health Notes** published an issue on "Keeping the Atom Friendly." This issue of **Florida Health Notes** will discuss the fast expanding field of nuclear science, the atom, nuclear fission, the peaceful uses of nuclear energy, the hazards of unnecessary exposure, and the work of the Division of Health to protect the people of Florida and their visitors from excessive radiation.

FLORIDA HEALTH NOTES

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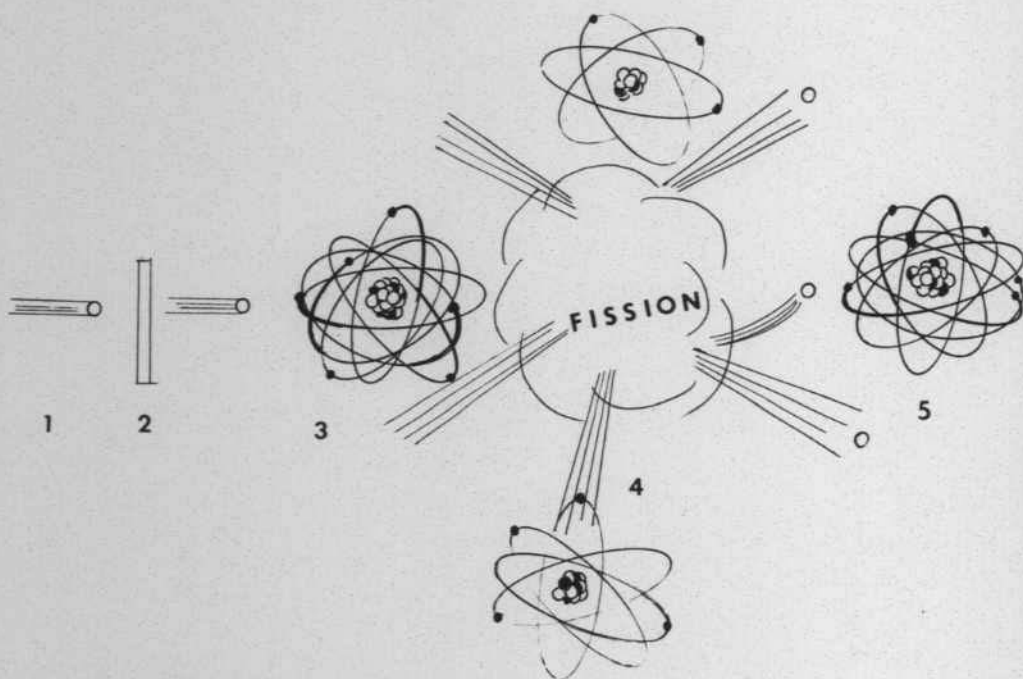


ENVIRONMENTAL SURVEILLANCE — The Division of Health maintains air sampling stations in many areas, including those where nuclear reactor plants are being built. The air is drawn through a vent (marked with arrow) and passes through a filter which removes radioactive particles.

Radiation in Nature

From the beginning of time, there has been radiation present in man's environment. It is emitted from various rocks and soils having concentrations of radioactive minerals. Some rocks give off gamma rays but the actual dose to people is somewhat less because people have a tendency to live on soil, rather than on rocks. However, residents of the mountainous areas of Western United States receive more radiation than people on the coastal plains of the East. Florida has areas where there are concentrations of radioactive elements in the soil that give off some gamma rays. Radioactive materials may be found in construction materials (granite and certain kinds of concrete have a high radium content); there are traces in the air we breathe, the food and water we consume; even in our bodies.

The basis of this radiation is the atom. The idea that all material is composed of elementary particles dates back to the early 4th Century, B. C. Ancient philosophers recognized four different kinds of atoms —



RELEASING NUCLEAR ENERGY — This drawing demonstrates how fission is carried out in a reactor. (1) A neutron is released at an atom. (2) It is slowed down by a paraffin, water or graphite barrier. (3) It hits the atom's nucleus and (4) causes fission to occur. The protons, neutrons and electrons rearrange themselves into two new elements roughly equal to the first atom. Energy is released as heat. Some "prompt" neutrons are given off. (5) In a nuclear generating plant, these neutrons are absorbed by control rods or other materials, while a "delayed" neutron hits another atom, causing another "generation" of fission.

those of air, earth, water and fire — which were supposed to be the elementary substances constituting the universe. Plants were thought to contain atoms of water and earth from the soil and atoms of fire from the sun's rays. When wood was dried, the water element was removed; when the wood was burned, the decomposition released the sun's atoms as fire; the ashes became the earth's elements. Wrong and primitive as these views were, they certainly were logically constant and contained a germ of scientific truth.

The Atom

Atoms are the building blocks of which all matter consists and are the simplest units of an element which participate in a chemical reaction. There are 103 different kinds of atoms, such as oxygen, carbon, iron, potassium, gold — all different from one another in physical and chemical properties or composition.

The atom is composed of a dense center, or nucleus, containing protons and neutrons, surrounded by a cloud of electrons with travel at high speed in orbits around the nucleus. This can be imagined as a miniature solar system in which the sun is represented by the positively-charged nucleus of the atom and the planets by the negatively-charged electrons.

It is the number of protons in the nucleus which gives the element its basic characteristic and physical and chemical properties. The simplest element, hydrogen, consists of a nucleus made up of one proton with a single orbital electron circling about it. The proton in the nucleus carries one positive charge of electricity and the electron carries a single negative charge.

More complex atoms consist of a combination of protons and neutrons in the nucleus, and under normal condition, an orbital electron for each proton in the nucleus. The helium atom, for example, has a nucleus of two protons and two neutrons with orbital electrons of two — equal to the two protons. Near the other extreme of the atomic scale is uranium, having a nucleus of 146 neutrons, 93 protons and 92 orbital electrons.

Radioactive Materials

The nucleus of each atom has a certain degree of stability and is bound together by a certain amount of energy. Some types of atom, such as carbon and gold, are neutral and are stable. Others, such as uranium and radium, are unstable even in nature. However, a natural atom may be considered radioactive. At one time man was exposed only to radiation from decaying materials in nature and cosmic radiation. But about the end of the 19th Century, man discovered that

uranium had the ability to darken a photographic plate. Experiments by Madame Curie and her husband resulted in the knowledge that uranium emitted a type of radiation, and after years of testing, many natural materials were discovered to have the property of radioactivity. Since that time, men have discovered that they could produce man-made radioactive materials by transmutation caused either by splitting natural atomic nuclei or by bombarding stable atoms with high-energy particles.

One type of radiation — the X-ray — was discovered by Roentgen in 1895 and it promptly became widely used in medicine. Within a few months, this new radiation was observed to cause the loss of hair and skin burns. X-ray then became a problem in public health. Some of the X-ray burns developed into chronic ulcers and many resulted in cancer. The ability of X-rays to produce cancer was well documented by World War I and the number of early workers who were injured by X-ray will probably never be known. A scientist in 1926 observed the mutations, or biological changes, made possible by exposure to X-ray and this opened research on the genetic effects of radiation.

As previously stated, there are 103 known elements. These range from hydrogen, with one proton, to lawrencium, which has 103 protons. All atoms of an element must have the same number of protons, but the number of neutrons in the nucleus may vary slightly. These variations are called "isotopes." Uranium - 238 has 92 protons and 146 neutrons in the nucleus with 92 electrons circling about the nucleus. An isotope, Uranium - 235, which has 92 protons and 143 neutrons, was the first element to be split into two other elements by a nuclear reaction. This division of the heavy nucleus is called "fission." The first sustained chain reaction was demonstrated under the football stadium at the University of Chicago on December 2, 1942. Fission is the cause of nuclear energy and makes possible nuclear power for generating electricity and the making of radiopharmaceuticals for medicine.

Whenever an atom, such as Uranium - 235, absorbs a neutron, the following action takes place:

- The neutron bullet passes through a barrier of water, graphite or paraffin, which slows it down, giving it a chance to hit an uranium atom.

- The protons, neutrons and electrons in the uranium rearrange themselves and form two new atoms of other elements, each roughly half the weight of the Uranium - 235.

- Stray neutrons from the split atom go on to cause fission of other nuclei. These, in turn, give off more stray neutrons, causing additional fissions. The energy which held the atom together is released in the form of heat.

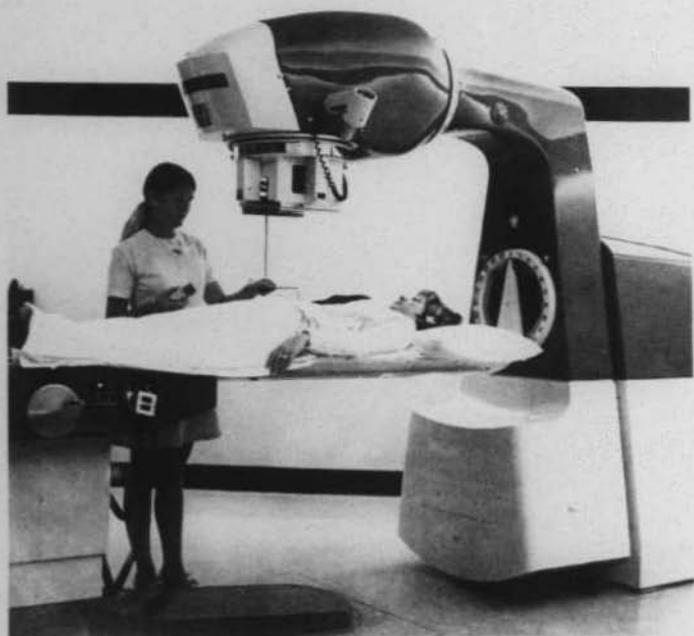
In a nuclear weapon, the chain reaction goes on for many "generations" in less than a millionth of a second. This release of energy appears as terrific heat and a violent explosion. It is said the energy released from one pound of uranium can raise New York City's tallest skyscraper, the Empire State Building, some 600 feet.

In a nuclear power reactor, the "prompt" neutrons given off by the chain reaction are absorbed by the controlling materials or coolant. "Delayed" neutrons cause a much slower fission, sometimes as much as three or four minutes between generations. It is this delayed fission that allows man to use nuclear energy as a source of fuel to operate electrical generating stations.

The nuclei of many elements can be made to fission — break up under bombardment by neutrons or other atomic particles — but only a few will yield neutrons and so permit the progressive fissioning of other nuclei.

A radioactive element is one whose atomic nucleus spontaneously disintegrates, emitting radiation and changing into a different element, or in some cases, a different isotope of the same element. This may occur in naturally radioactive elements or in an element which has been made unstable by artificial methods.

Primary natural radioactive materials are those long-life elements that occur in nature and have survived in significant quantities since the elements in the earth were created. Materials that have long lives, or are dying or decaying at a slow rate, are said to have a long half-life. The most important natural primary radioactive materials existing in substantial quantities today are potassium, uranium, radium and thorium. Some of these elements have a very short half-life while others have a half-life that may last for centuries.



THERAPY — This cobalt unit in a Florida hospital is used in the treatment of disease. Rapidly dividing cells, such as cancer, are susceptible to destruction by radiation.

How Radiation Affects the Body

As radiation given off by radioisotopes or produced by machines, such as X-ray, passes through matter it dissipates its original energy through a series of collisions with the atoms of the substances through which it is traveling. Any material in the path of the radiation, including living tissue, absorbs radiation energy and through this transfer of energy, biological effects are produced.

The most important process through which radiation energy is absorbed is called "ionization." During ionization, the radiation strikes one of the orbiting electrons in an atom of the material or substance and tears it completely away from the atom. The remaining atom, now minus an electron, is said to be ionized.

Radiation is given off in one or more forms — alpha, beta and gamma radiation. These three differ in their abilities to penetrate the material which they strike.

- Alpha particles are the heaviest of the three radiations. They produce a dense track of ionization and dissipate all of the initial energy over a short distance. A sheet of paper can stop or shield a person against alpha particles.

- Beta particles are much smaller with less electrical charge. They produce a scattered radiation effect and have a longer range than alpha particles. Beta particles have a wide range of energy from a thousandth of a volt to a few hundred thousand. Depending on the energy, beta particles can be stopped in most cases by a variety of materials, including cardboard, wood, glass and plastic.

- Gamma rays are not particles with mass or electrical charge, but are a type of energy which can travel long distances in the air. Like X-rays, they can completely penetrate the body when delivered externally.

There are two special measurements in radiation science:

- Units that measure the amount of activity in a radioactive sample are based upon the number of atoms in the sample that are decaying in a given period of time. The basic unit is a **curie** and this is broken down into **millicurie** (one-thousandth of a curie); **microcurie** (one-millionth of a curie); and a **picrocurie** (one-trillionth of a curie). The quantity of Cobalt-60 in a teletherapy machine used to deliver external doses of radiation treatment may be up to several thousand Curies; an oral capsule of Iodine - 131 used in the treatment of hyperthyroidism may contain five or 10 millicuries; and a tracer dose of the same isotope for diagnostic purposes may be measured in several microcuries.

- Units of radiation dose are expressed in the amount of interaction or radiation with matter. The standard unit, **roentgen**, measures the amount of ionization taking place in air as the result of X-ray or gamma irradiation. Dose rate is the amount of radiation energy absorbed within a period of time in a radiation field. An absorbed dose is often expressed in units of **rads** or **rems**.

If a nurse has a vial of injectable solution containing 10 millicuries of Iodine - 131 sitting on a shelf, she may be exposed to two miliroentgens per hour of penetrating gamma radiation while standing

at a given distance. Or, when five millicuries of the material could be administered to patient, his thyroid gland thereupon would receive an absorbed dose which would be expressed in rads.

Ionizing radiation is harmful to living tissue. On a subcellular level, or below the level of surface of the skin, the ionization produces disturbances in cell function which could lead to injury or death to the entire organ. Individuals vary in their susceptibility to radiation. In addition, there exist a variability among the cells in the body. Cells that are rapidly dividing are most sensitive to radiation, while those that are non-dividing and are specialized are more resistant.

Lymphocytic cells and immature forms of both red and white blood cells are sensitive to radiation, as are the immature and rapidly dividing forms of both male and female germ cells. On the other hand, muscle and nerve cells, which are not dividing are resistant. This may account for the reason that primary and rapidly-dividing cancer cells may be more susceptible to destruction by radiation than adjacent normal cells.

Some of the elements found in the environment or put there by nuclear weapons testing, accident or missuse can have an adverse effect on the body. Strontium - 90, Strontium - 89, and Plutonium - 239, among others, may be ingested or inhaled and will find their way into the human bone; Iodine - 131 has an attraction for the thyroid; Carbon - 14 will find its way into the reproductive organs.

Short term radiation effects are those that may manifest themselves within a period of hours, days or weeks. These effects are often dramatic and more or less specific to radiation exposure. They can be produced only by exposure to a relatively large dose delivered to the major part of the body in a short period. The symptoms are nausea, vomiting and malaise, followed by a subsiding of symptoms. Additional illnesses may appear during a third stage with hemorrhage, fever, infection, epileptic-like seizures, diarrhea and evidence of damage to the central nervous system. Gradual recovery or death will follow.

In public health, the long-term effect of radiation is of great concern since large numbers of people are exposed chronically to low levels of radiation. Survivors of atomic bombings of Hiroshima and

Nagasaki have shown an increased incidence of leukemia. Groups of patients who received therapeutic irradiations for various non-malignant conditions were found to have an elevated incidence of leukemia. An increase in the incidence of thyroid cancer and other malignancies of the head and neck have been observed among persons exposed to X-rays of the neck and thorax in the treatment of the thymus gland. Also, fetal deaths or malformation of babies have occurred among women who were X-rayed early in their pregnancies. Doses of several hundred rems or more have shown to induce or accelerate the formation of cataracts on the lens of the eye.

When radiation is directed at the gonads, the damage produced in the germ cells is not manifested in the irradiated person but in his offspring. Animal experiments have shown that radiation exerts a nonspecific shortening effect on the life span and certain groups of radiologists have a higher death rate from a wide variety of causes than physicians who are only occasionally exposed to X-rays in their practices. In turn, these physicians have a higher death rate than those whose specialties involve no exposure to radiation.

Nuclear scientists and physicists have determined how much radiation can be absorbed by man during a lifetime. The testing of nuclear weapons produced radiological environmental contamination everywhere on earth and will be detectable in the upper atmosphere for many centuries to come. Such nuclear fallout has increased the dosage to human bone, bone marrow, and gonads in the Northern Temperate Zone some five to 10 per cent above the level of natural radioactivity.

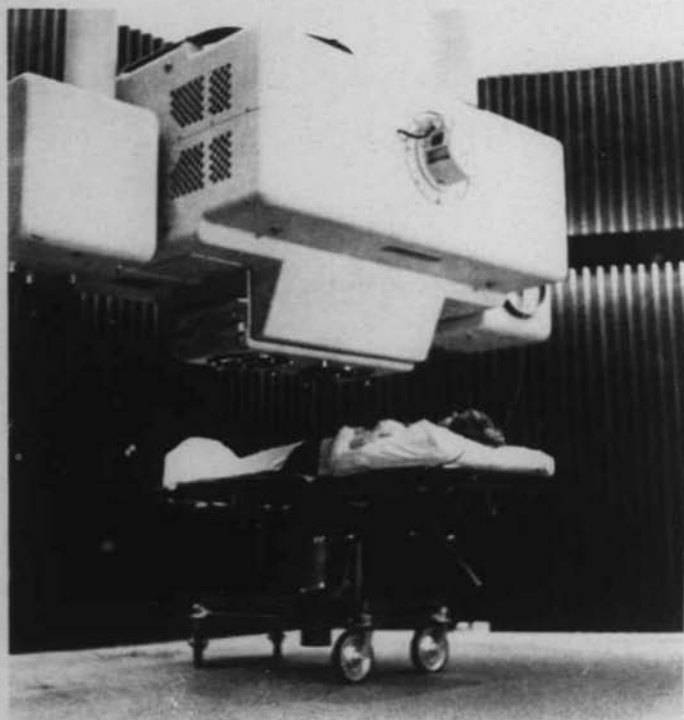
Medical Uses of Radiation

We have pointed out some of the dangers of radiation, but there is much good done by the application of nuclear energy to nuclear medicine. In medicine, the physicians must tread the fine line between giving the adequate amount of radiation or radioactive material to carry out the diagnosis or treatment, and giving too much radiation. They must weigh the good accomplished by radiation against the potential harm it can do the patient.

The increased use of radioactive materials and machines that produce radiation presents many problems to the Division of Health physicists. Many hospitals and clinics have generators that produce Technetium - 99m for use in diagnostic scanning. Most hospitals have an X-ray department with several X-ray machines for diagnostic purposes; in the corridors and rooms of the building are smoke detectors using americium and radium; in the obstetrical-gynecology section, radium is used; and in the basement or a special building, there may be a betatron or teletherapy unit for the treatment of cancer. In addition, one hospital in South Florida will soon have a cyclotron in operation to produce radioisotopes which may be used in radiopharmaceuticals.

Most radiopharmaceuticals are short-life isotopes that have an abundance of protons and are high in energy. Half-life of some may be only a few minutes; others may last for several days, making them useful in the detection of tumors. Organs on which radiopharmaceuticals are used in diagnosis are:

- brain — to locate tumors;



25-MILLION ELECTRON VOLTS — This betatron, the first in Florida, is used by a hospital for deep therapy. The instrument is housed in a specially designed room for the protection of the community.

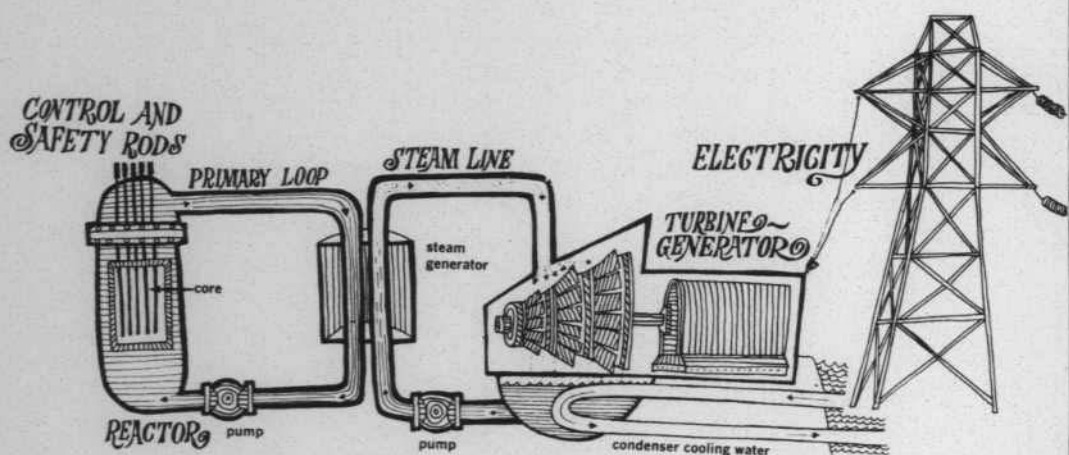
- thyroid — to determine size and abnormalities;
- liver — to detect size, shape, position and abnormalities;
- pancreas — to show size, shape, and abnormalities;
- heart — to determine blood flow abnormalities, size, position, shape, irregularities and muscle formation;
- lung — to detect the profusion of blood and inhalation;
- kidney — to measure function, find tumor, cyst or abnormalities;
- bone and bone marrow — to find lesions; and
- breast, abdomen — to find fibrous or malignant tumors.

The Industrial Use of Radiation

The use of man-made isotopes in industry has grown rapidly in the past 20 years. The number of manufacturers of radioisotopes, the number of sources for each manufacturer, and the size of source have increased substantially.

Radioactive materials are used by industry

- to measure the thickness of piping;
- to weigh phosphate in order to determine moisture content;
- to determine the level of liquids in a tank;
- to measure the surface moisture of roadbeds;
- to inspect the efficiency of jet engines;
- to measure the effectiveness of lubricants in an automobile engine; and
- to measure minute thicknesses of paper.



NUCLEAR POWER PRODUCTION

GENERATING ELECTRICITY — This simplified drawing shows how the heat from a nuclear reactor is converted to steam. This steam turns the generators which make electricity.

The beverage industry uses radiation to sort out partly-filled cans at high speed and inventory the solution of corrosive materials in tanks. The ship building industry uses X-rays to take non-destructive pictures of welds and other assemblies. The food industry has radiated seeds to produce greater yields — as much as one thousand times, and to speed the natural mutation of plant life.

Radiation and the Environment

Public health workers are becoming more and more concerned about the effects of radiation from industrial sources that use great amounts of radioactive materials. Most of the instruments and equipment used in industry use small amounts of isotopes. Much of the

medical uses of radiopharmaceuticals are measured in microcuries. However, there are a few installations that use thousands of Curies and these are potentially hazardous to the public health.

At the present time two Florida power companies are building or planning electric generating plants that are to be powered by nuclear reactors. The Florida Power and Light Company has two at Turkey Point near Miami that will go into operation within the next two years, and is planning a third at Hutchinson Island, near Fort Pierce. The Florida Power Corporation has a nuclear reactor plant under construction at Crystal River.

The Division of Health recognizes the radioactive hazards from these nuclear reactor plants. However, it also recognizes that there are unpleasant factors related to the fossil-fueled power plants now in use.

There is no question of the need to increase electrical power output. Dade County will be facing a possible brown-out next summer because of the expanding population which means more buildings that require more air conditioners, electric lights, stoves and equipment.

One solution would be to reduce the population but this is impractical. A second answer would be to reduce the use of electricity. This would mean less electricity for coronary care units, diagnostic X-rays, fewer dishwashers and air conditioners. The reduction of electricity would lower the level of existence, therefore creating an increased public health hazard.

Electricity can be produced by water power, fossil fuels or nuclear energy. Florida has no place to produce hydroelectricity. So the choice lies between nuclear energy and fossil fuels. The choice of the latter means the dispersal into the environment of millions of tons of fly ash, carbon monoxide, carbon dioxide, sulfur dioxide and other chemicals, not to mention the redistribution of the natural radioactivity.

The companies which are building the nuclear reactor generating stations are fully aware of the potentially hazardous substances with which they are working. Every discussion on radiation between the Division of Health and the power companies relates to the dangers of the dispersal of radioactive residuals into the environment.

Although there are several kinds of nuclear power generating stations, those in Florida will be of the "pressurized water reactor type." The only difference between these and the conventional coal or oil-fired power plants is that nuclear energy is the heat source used to make the steam to run the power generating equipment.

The pressurized water reactor has two basic systems:

- A nuclear reactor, enclosed in a thick-walled containment building, is cooled by water pumped through the reactor. The water, some 300,000 gallons per minute, reaches a temperature of 600 degrees Fahrenheit, but is kept under pressure to keep it from boiling.
- The heat from the water in the primary system is transferred to water in a secondary system that in a heat exchange turns to steam. This steam operates the turbines that operate the generators that creates the electrical energy.

The fuel in the nuclear reactor consists of uranium dioxide with fissionable isotopes that are compressed into pellets and inserted into stainless steel tubes. A controlled chain reaction can be produced with each fissioning uranium atom supplying the neutrons to split the next atom. This provides a steady output of heat energy as long as the chain of fissions in the uranium continues. A supply of uranium oxide, some 176,000 pounds will last a power plant about 18 months. The chain reaction can be started, stopped and controlled by regulating the number of neutrons that carry on the chain reaction. This is done by inserting among the fuel elements a number of control rods that contain a material which absorbs neutrons. When more heat is needed, the control rods can be withdrawn, and a chain reaction occurs.

Besides the nuclear power generating stations, the Division of Health is concerned with the use of nuclear material launched into space aboard space vehicles. Each of the lunar ships that carried men to the moon had 45,000 Curies of Plutonium - 238 aboard. This radioactive material was used to supply energy for scientific instruments left on the moon to collect information on the formation and chemical composition of lunar soil and the weather.

The Division of Health and the U. S. Public Health Service have been jointly involved with these space launches because an aborted mission

CHECKING RADIATION LEVEL

— A physicist monitors the background radiation level at one of the several points manned by the Division of Health near Cape Kennedy during a recent Apollo rocket launch.



on the ground or during launch could possibly spill this Plutonium - 238 over the area around Cape Kennedy. The two health agencies had studied weather and wind patterns around the Cape and were well acquainted with background radiation levels before the Saturn rockets were launched. During the time the rockets were being fueled and during blast-off, teams of physicists from the state and federal health agencies were continually watching the wind directions (to determine in which direction a possible radioactive cloud would travel), and monitoring the radioactivity of the air (to determine if the level had risen).

If the rocket mission had aborted, either on the pad or during the initial launch, and the contents of the SNAP-27 instruments spilled into the environment, the Division of Health and U. S. Public Health Service would have been prepared to assay the situation. The half million persons watching the rocket launch would have been advised by the health agencies as to proper safety procedures.

Public Health's Role

During World War II, when nuclear power was born, the Manhattan Engineering District of the U. S. Corps of Engineers was responsible for the atomic energy program and placed a high priority on keeping environmental contamination to a minimum. When the Atomic Energy Commission took over in 1946, the cautious policies were continued. However, nuclear weapons testing in the late 1940's and the 1950's by the United States, Soviet Union, United Kingdom, France, and more recently by Communist China, have produced radioisotopes that have found their way into our food, air and soil.

In 1959, the Congress authorized the Atomic Energy Commission to extend agreements with any state for the peaceful use of atomic energy to turn over to those states the licensure of radioactive users



THE LEVEL IS — At another check point, a Division of Health physicist reports the radiation level to central headquarters. A radio keeps him informed of the countdown of the rocket launch.

and equipment. Florida became an agreement state on July 1, 1964. Those persons to whom the Commission had issued licenses for the use of radioactive materials became Florida licensees.

The State Board of Health (now Division of Health) was designated as the state agency to receive and evaluate applications for the possession and use of radioactive materials, and to issue licenses.

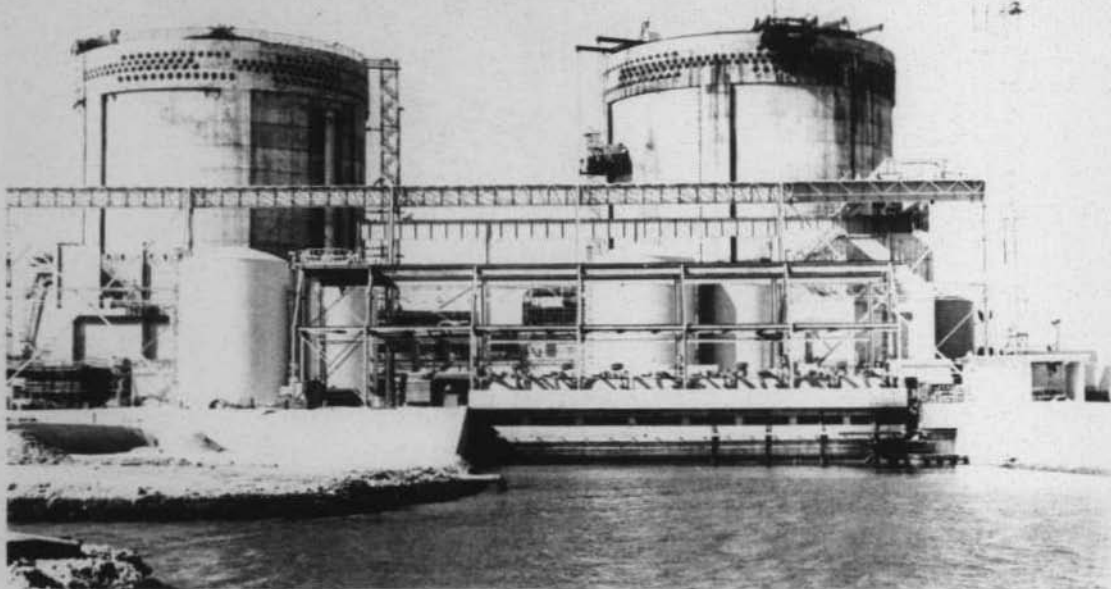
Licenses are issued to private physicians and hospitals for medical use and tele-therapy units; and to academic, industrial, civil defense and special facilities that use nuclear materials.

The primary purpose of licensure is to protect the community, personnel and patients from stray or unnecessary radiation. After an application is made to the Division of Health, the health agency evaluates the application for construction of the facilities, type of equipment (Is it suitable for handling the radioactive materials?), shielding to protect the people involved, and training of personnel who will be using the equipment. Hundreds of hours can be spent in studying the specifications and blue prints to make certain the requirements of the state's laws and regulations are met.

The U. S. Atomic Energy Commission issues general licenses to manufacturers of radiation-emitting devices and it notifies the Division of Health of the sale of the material and devices to users in Florida. While the state health agency is interested in the protection of the people from all types of radioactive materials, the Atomic Energy Commission is concerned with by-product materials from reactors, source materials, and special nuclear materials. It is not delegated to regulate naturally-occurring radioactive materials, or accelerator-produced isotopes.

The Division of Health is also interested in the disposal of any waste material. Because of the high water table, Florida is more careful than other states in this matter. Most nuclear wastes are collected by the users, packaged in appropriate containers, and shipped to a licensed burial site. The one nearest Florida is in Kentucky.

Pre-licensing visits are made to potential users of radioactive materials. These visits assist in the obtaining of a safe use of radioactive materials and the proper facilities and equipment to handle them.



FLORIDA'S FIRST — The first two nuclear reactors to help generate electricity in Florida are located in these two buildings at Turkey Point near Homestead. They are known as Florida Power and Light Company's No. 3 and No. 4.

Environmental Surveillance

At one time, radiological surveillance was mainly concerned with fallout from the introduction of radionuclides into the biosphere and atmosphere by weapons testing. To this end, the Division of Health and several county health departments maintain the Florida Radiation Surveillance Network which regularly samples milk, air and precipitation to determine the amount of radioactive materials in these media. Milk is the one single food most indicative of the population's intake of radionuclides and is a good indicator of the presence of fresh fission products in the environment. Air sampling provides an early alert to the eventual appearance of fresh fission products in the environment. The Division of Health maintains network stations in Pensacola, Tallahassee, Titusville, Rockledge, Melbourne, Orlando and St. Petersburg; the U. S. Public Health Service maintains, a network that includes stations in Jacksonville and Miami. Some radioactivity reaches the earth from the atmosphere by "dry deposition" or dry fallout; but because rain is nature's atmosphere cleansing agent, most of the radioactivity reaches the earth by being washed down by rain.

Emphasis in the Division of Health's radiological health surveillance program is now swinging from the monitoring of radionuclides caused by weapon's testing to the large-scale use of nuclear energy for peaceful purposes.

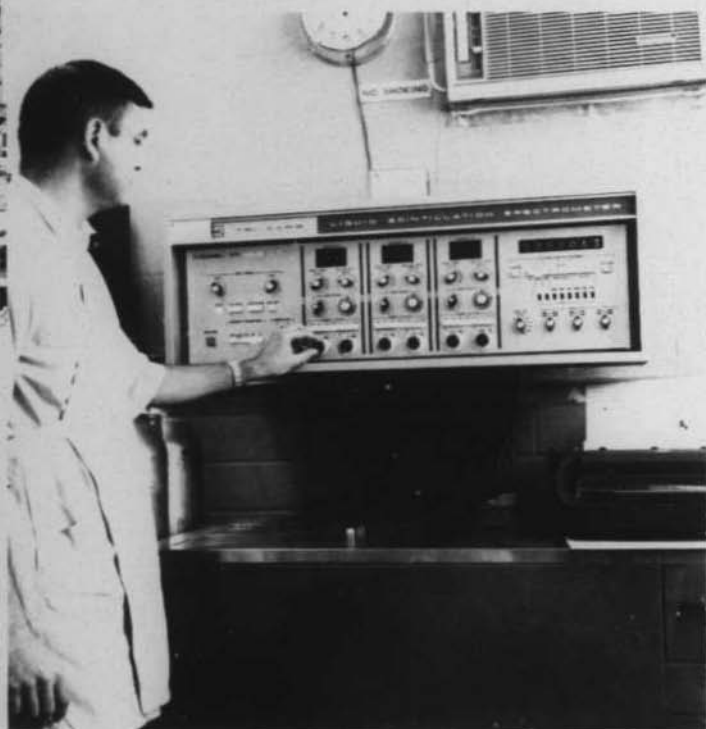
To make sure they do not damage the environment, the electrical power companies have made grants to the Division of Health which provides assistance in studies of the areas around the nuclear reactor plants before they go into operation. Radiation specialists from the Division of Health are carefully measuring the "normal" radioactivity before the plants start up. After they go into operation, any extremely small changes in the environment will be detected. Past experience in other states has shown that radioactivity released by such power plants is extremely low.

The Division of Health is also making background radiation studies along the Chattahoochee River. A nuclear reactor plant is under construction in Alabama upstream from Lake Seminole which lies on the Alabama - Georgia - Florida border. Projections by federal agencies and other interested groups are that seven additional plants may be built in Florida by 1976. Despite the best operations of these plants some radionuclides may be released into the environment through the waters used in the secondary system. These radionuclides can result in unnecessary exposure to the population and will be monitored to prevent a build-up of radioactivity which could prove irreversibly hazardous to the people of Florida.

Large quantities of nuclear wastes (from the fuel used in the plants) will move across Florida. Each of these power plants will generate as much radioactivity as a 50-kiloton fission weapon — which is equal to 50,000 tons of TNT. In addition, some 50,000 shipments of radioactive materials a year arrive at Florida's airports. Nearly every plane that flies into Miami's International Airport carries some form of radioactive substance. Many hospitals and clinics have standing orders for radiopharmaceuticals to be flown in each week from manufacturers in other parts of the United States.

In order to protect the community from exposure, the Division of Health's radiological health program makes certain that radioactive materials are contained in a safe manner, not only at the plant site

or in the hospital, but during transportation. The shipment of radioactive materials across the state requires the cooperation of a number of state agencies to prevent accidents that could lead to contamination of the environment.



ANALYZER — This liquid scintillation spectrometer in the Division of Health's radiological laboratory analyses soft beta radiation in liquids.

Laboratory Assistance

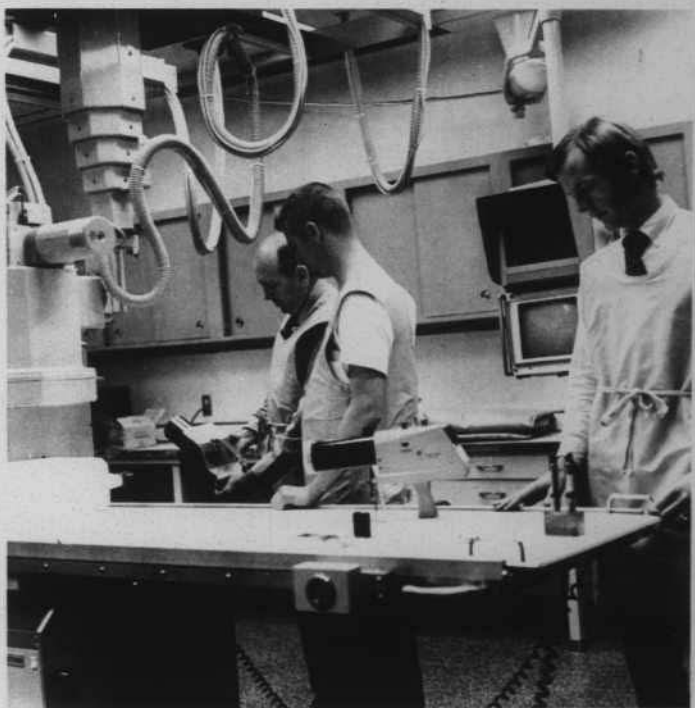
The Division of Health operates a special laboratory for the testing of materials from the environment for gamma rays, and gross beta and gross alpha particles. Specific nuclide analyses are also carried out for Strontium - 90, Tritium and Cobalt. Over 200 specimens are tested each month. These include not only samples of milk, air and water from the Florida Radiation Surveillance Network, but samples of milk, air, precipitation, vegetables, soil and water from areas surrounding the sites of the nuclear reactor plants.

Florida's Inspection Program

Florida has some 600 licensed radioactive material programs and some 10,000 X-ray machines used for medical, educational and industrial purposes. To carry out an inspection program, the Division of Health has four full-time field inspectors who are specially trained in radiological health.

When they are going to make a field inspection, the men learn about the company, its background, operations, products, and personnel. The company, hospital or clinic must account for its supply of radioactive materials, reveal the source and method of disposal of the wastes. If any of the material is missing or unaccounted for, the company must find it. Using special survey instruments, the inspectors take readings around the equipment to find if radiation levels are within safe limits. They take readings in adjacent rooms to make certain that areas where other people are working are free of radiation. The inspectors make sure sources and areas where radioactive materials are used are clearly marked and that these are not places where people loiter or eat their lunches. From the reports which are made, the

MEASURING RADIATION — Using a water phantom, a Division of Health physicist measures possible radiation scatter which may be present in a hospital's radiology department.



Division of Health reviews the licensees' performances and facilities to find if they are operating according to their licenses and the Division of Health's regulations for the control of radiation hazards.

Twice in recent years, the Division of Health has had to issue emergency orders to protect the public's health:

- A drug company which was using radioactive materials in the manufacturing of pharmaceuticals, permitted some of the material to escape into the environment. It filtered into the sewerage system and into the office areas. Even the rug in the lobby was "hot" with radioactivity. The Division of Health took drastic steps to have the radioactive material contained and cleaned up because it feared gross contamination of the facilities and the products sold by the company.

- An abandoned laboratory, where radioactive materials had been processed, became contaminated over a number of years. Due to poor housekeeping, the radioactivity had accumulated in the air conditioning system, the walls of the building and the grounds. To protect the public and the community water supply, the Division of Health had the purchaser of the laboratory tear down the building under supervision, pack it up, and ship it off to a waste material burial grounds. The Division of Health feared that the building would catch fire and the conflagration would spread the contamination over the community.

The Division of Health, in cooperation with the U. S. Public Health Service, has increased surveillance of microwave ovens in homes, restaurants, snack bars and dealers' showrooms. A study showed that one out of four (of some 440 ovens) were leaking radiation over the level voluntarily accepted by the manufacturers. Recommendations were made by the health agency to oven owners that they have adjustments or repairs made by authorized service dealers.

Inspectors also check medical diathermy equipment, color television sets and radiation producing machines. In 1970 some 597 radiation-producing X-ray units were inspected in 283 locations and checked for beam size alignment and filtration, operator protection, darkroom facilities, and fluoroscopic output.

The number of X-ray machines in use in Florida continues to increase annually. In 1946, there were over 5,000 X-ray machines and in 1970, over 9,500 were registered. The Division of Health recognizes

that X-ray machines in physicians' and dentists' offices are the greatest contributors to population radiation dose. Inspectors look for proper shielding of the X-ray tube heads; filters which remove low radiation but permit the use of the most useful rays in sufficient quantities to penetrate the patient and expose the film; filters which stop the radiation of low energy and which do not provide any diagnostic information; collimators, cones or lead rings which confine the beams to the areas of diagnostic or clinical interest; and area shields or wall shielding to protect other areas from exposure.

The Division of Health also recommends the use of high-speed X-ray film and favorable developing conditions which reduce exposure to the patient by providing clearer X-ray films in less exposure time. Equipment, such as image intensifiers, are also recommended to increase the efficiency of fluoroscopes and minimize the time the patient is exposed to radiation.

Emergency Response Team

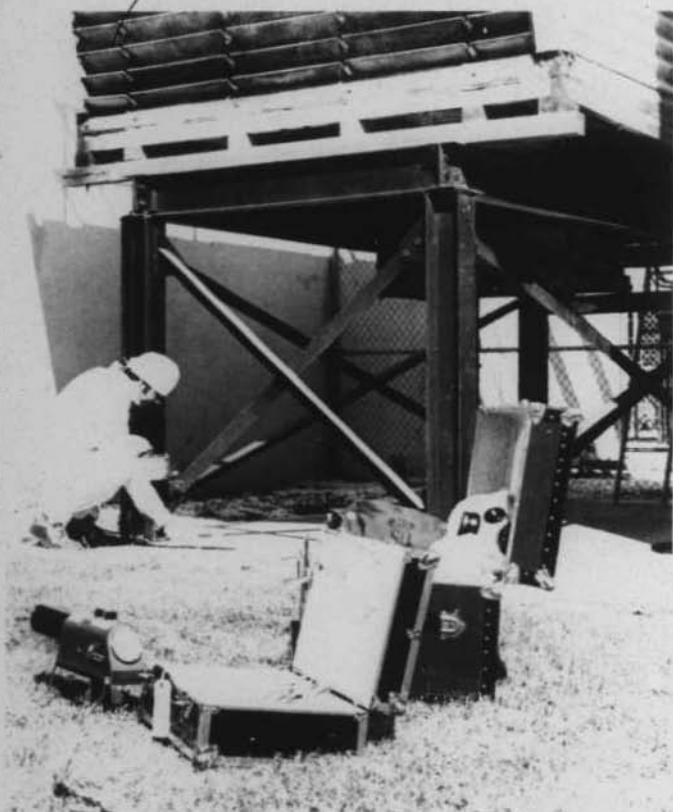
For a period of time, the Division of Health cooperated with other agencies, such as Civil Defense and universities, in locally-based teams that responded to radiation emergencies. Now the emergency team plan has been revised to keep a specially-equipped vehicle and a man on duty in Jacksonville to fulfill this function.

The vehicle is equipped with adequate and sufficient radiation detection instruments that will handle any situation confronting an emergency team. In the vehicle are such equipment as radiation detectors or geiger counters, protective clothing and breathing apparatus, face masks, breathing devices, plastic shoe covers, and plastic bags in which to put radioactive materials.

All licensed users of radioactive materials in Florida have emergency procedures "built into" their licensing program. However, they can call on the emergency team should an accident occur. People at the place of the accident, whether on the highway or in a hospital, can con-

tact the Division of Health through the Florida Highway Patrol or Civil Defense — both of whom have statewide radio networks.

Packages with radioactive materials are usually labeled with the standard radiation symbol and police or anyone observing such packages involved in an accident should contact the Division of Health. The Emergency Response Team would take care of the material, try to prevent panic, halt the spread of contamination, and protect the public.



EMERGENCY — The Division of Health has an emergency response team on duty at all times to answer radiation emergencies. The team can remove radioactive materials, prevent panic, and halt the spread of contamination.

An Expanding Radiological Health Program

We have tried to show that the radiological field is expanding in Florida. Hospitals are installing more and more complex equipment for diagnosis and treatment — for the creation of radioactive materials.

Some of these require special buildings with extra thick walls. Industry and electrical power companies are devising new means of using nuclear energy.

The Division of Health, through its radiological health program, has the responsibility to control radiation hazards. The primary objectives are to minimize and prevent unnecessary or unproductive radiation exposure and to protect people from the immediate and long-term harmful effects of radiation exposure. In order to protect the people, the Division of Health licenses the use of radionuclides in nuclear medicine (for diagnostic and therapeutic purposes), industry, research and development, and educational applications.

It is this radiological health program that evaluates radiation safety aspects of large nuclear facilities, such as power reactors; make intensive studies of engineering and design of such facilities to determine the potential for the release of radioactive matter; monitor various pathways to man in order to determine population dose; and coordinate, develop and implement radiological emergency plans.

With this expanding use of radioactive materials and devices, it is only necessary that the Division of Health expand its staff of physicists to check on the installation of new equipment and the maintenance of old in its program to protect Floridians and their visitors. While thousands of inspections of X-ray machines have been made, much of the registered equipment have never been inspected to assure that it is operating in a safe manner. This is of concern to the Division of Health, physicians, radiologists, and X-ray technicians who work with this potential radiation exposure. The health agency receives continuing requests for inspection which it cannot meet. This is due to the small number of field inspectors now on its staff.

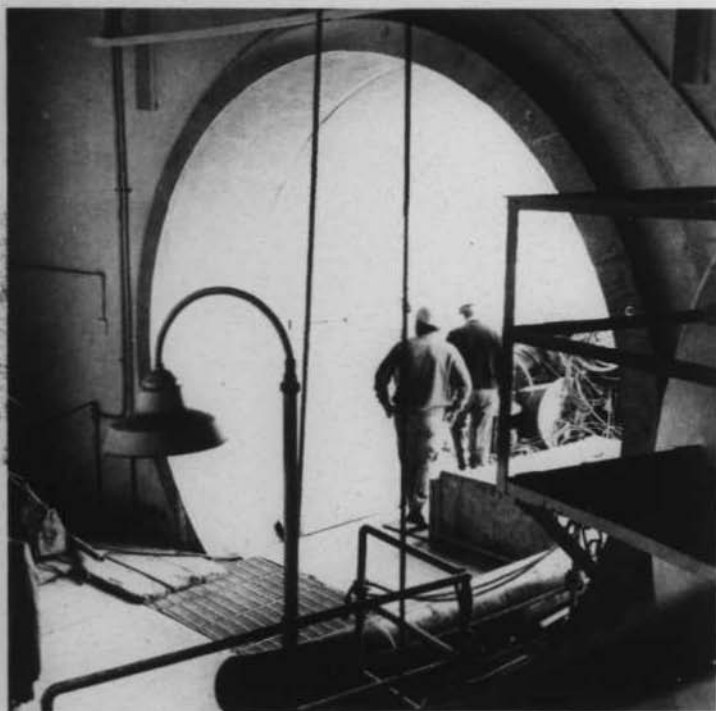
The Future — Safe or Hazardous?

The Friendly Atom, useful in medicine, industry, power generating, transportation and many other ways, has unseen tentacles. Radioactivity cannot be seen. Biological damage due to radiation exposure cannot be corrected. An environment contaminated with radioactive materials cannot be cleaned. Everyone concerned with the use,

inspection and licensing of such materials must continue to reduce unproductive and unnecessary radiation exposure and be on guard to protect the environment from radiation pollution.

Public health physicians and nurses must be aware of the potential dangers from the expanding sources of radiation, know the methods of protection, and be able to recognize the symptoms of radiation poisoning. Healing arts practitioners must recognize that exposure of patients to radiation must be limited to what is absolutely necessary for diagnosis and treatment.

Man is the KEY to his preservation. And this preservation depends to a great extent on the successful and safe use of the Atom and its energy. Whether Mankind uses the atom to make weapons of war or to use it for peace is not enough to know. He must learn to control the Atom. This may determine his Future.



THICK WALLS — This porthole shows the thickness of the walls of the building that contains one of the nuclear reactors for the power generating station at Turkey Point. When the reactor goes into operation, the porthole will be closed.

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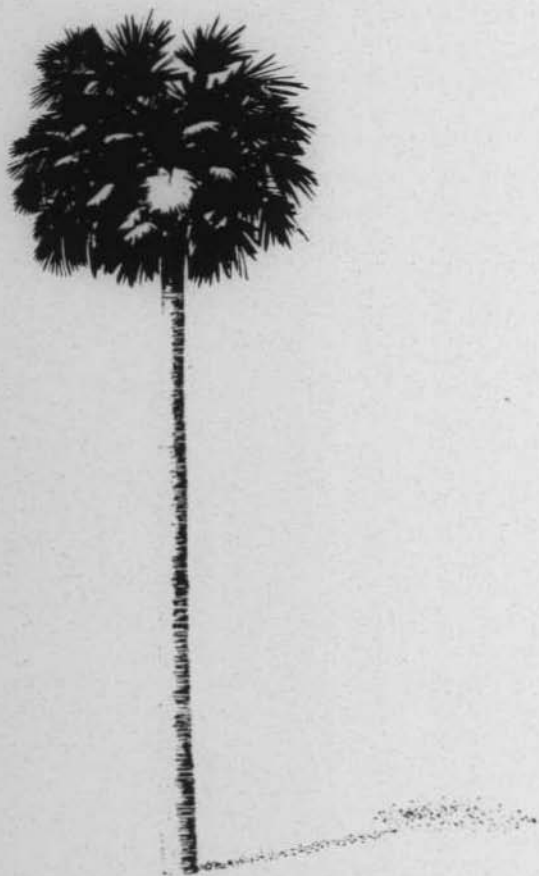
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Division of Health
of the
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FLORIDA HEALTH NOTES



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Laboratory Services

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PUBLIC HEALTH LABORATORIES —

Identifying bacteria, parasites and viruses (cover photo) is an important part of the laboratory services that are available to practitioners of the healing arts. Likewise, personnel who keep the animal colony, prepare media for bacteria culture, and sterilize the glassware contribute to the efficient work of the laboratories.



Laboratory Services

The scene is one of the Division of Health's laboratory buildings. As one walks down the corridors, the building seems to be a quiet, orderly place. People are looking into microscopes, bent over test tube colorimeters, watching a graph roll out of a gas chromatograph.

- A telephone rings and a voice says, "We have a child here with paralysis. Do you have a test to determine if it is polio?"

- A policeman enters the lobby of the building carrying a small suitcase. He asks a question of the receptionist, turns, walks through the doors to one marked CHEMISTRY. He enters and says, "I need to have this analyzed to determine if it is marijuana. Could I have the results in two days?"

- A sanitarian calls the laboratory, "We're sending up some water samples from Orange Blossom Junction. We seem to be having a problem with the water supply. The samples will arrive on the 2 o'clock bus. If the tests are bad, we'll have to make an investigation."

- A young couple dashes into the lobby carrying a couple of vials of blood. The young man explains to the receptionist, "Our doctor sent us over with these blood tests. I'm leaving for Vietnam and we want to be married before I go."

Even though the laboratories of the Division of Health have a quiet atmosphere, they are responsible for the health and happiness of millions of people. Although much of the work is routine, there are moments that would stimulate the most dramatic television show.

The public health laboratories are for the people of Florida and their visitors. However, in order that proper laboratory or clinical specimens be presented and that correct interpretations be made of the results, physicians, hospital clinics and county health officers must act as intermediaries for the people.

This issue of **Florida Health Notes** will tell you how the public health laboratories serve these physicians, county health departments and other practitioners of the healing arts — and indirectly, you The Reader.

The Beginning of Laboratory Services

In the early days of Florida and the State Board of Health (now Division of Health), public health and medical people were faced with one important question: How could the state conquer the health hazards which lurked in its semi-tropical wilderness? It was necessary to create a healthy environment before the state could grow. But how do you control yellow fever, malaria, smallpox, diphtheria, typhoid fever and other communicable diseases which cause much illness and many deaths?

Dr. Joseph Y. Porter, the first state health officer, had the answer, "By learning about those diseases!" And he urged that a laboratory be established "to aid the physicians and the local health officers in the diagnosis of certain diseases; to detect tuberculosis; to determine when diphtheria cases may be properly released from quarantine." Additional responsibilities of the laboratory, according to Dr. Porter, were "to examine blood smears for typhoid bacillus and malarial parasites; and secondary, to examine water supplies and carry out other investigations connected with public health questions."

The first laboratory was established in Jacksonville in 1902 and the first specimens were accepted for examination in January of the following year. The work grew. From 996 examinations performed in 1903, the total jumped to over 4,000 by 1908.

FLORIDA HEALTH NOTES

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MAY, 1971

In the early days, the public health laboratory was the only one available to physicians in Florida. As the work increased, health officials could see the need for regional laboratories in order that services could be brought closer to the people. Laboratories were established in Tampa and Pensacola in 1910; in Tallahassee and Miami in 1914; in Orlando in 1948, and in West Palm Beach in 1952. Brevard and Pinellas County Health Departments also have laboratories that carry on some of the work.

In those early days, physicians used the public health laboratories in the examinations of severely-ill patients. A high percentage of specimens submitted were positive in the tests requested by the physicians. Gradually, the emphasis shifted to prevention, to early diagnosis and to screening people who have a potential for a chronic disease. At present many of the specimens come from individuals who are apparently healthy. The original aim of the laboratories was to aid the practice of curative medicine; now its major objective is to foster preventive medicine.

An Expanding Program

The public health laboratory is an essential institution. But there are other laboratories that are necessary to carry on the work of the healing arts. A medical laboratory is a part of the smallest hospital or



IDENTIFYING NARCOTICS — A chemist seeks to identify marijuana by looking at the leaf's structure through a microscope. The identification of drugs and other substances for law enforcement officials is an important work of the chemistry laboratory.



TESTING BLOODS — A technologist makes quantitative determinations of cholesterol in blood serums. Through this work, the laboratory assists a profile screening program to find people who have a potential for heart disease.

clinic; many are operated independently by pathologists, clinicians, or qualified technologists. Each year new laboratories are organized. The Division of Health has the responsibility to see that these laboratories are operated in a manner that will protect the people from the hazards of improper performances. But more will be said about this later.

During the early years, the laboratory work was done by the director, a couple of assistants and a porter who doubled as a shipping clerk. Nearly 6,000 examinations were performed on specimens for communicable diseases — malaria, typhoid, tuberculosis, diphtheria, gonorrhea and intestinal parasites in 1910. A few urine, milk and water samples were also tested.

In 1971, the laboratory services have expanded to meet the challenges of modern times. The work is carried on by nearly 200 persons in seven laboratories. The Central Laboratory in Jacksonville and the large regional laboratories in Miami and Tampa have diagnostic units in virology, serology, sanitary bacteriology, parasitology, chemistry and diagnostic bacteriology. There are also special projects that concentrate on community pesticides, arthropod-borne viruses, rubella, air pollution, coronary diseases and phenylketonuria (PKU).

Some of the same communicable diseases that were widespread in the early years are still very much around today. Diphtheria, tuber-

culosis, syphilis, gonorrhea and intestinal parasites continue to take a large part of laboratory workers' time. In addition, dairy products, water pollution samples and utensil swabs from food service establishments have been added and expanded.

One of the newest units is the radiological laboratory that makes determinations on the amounts of radioactivity in the environment that could be hazardous to humans. The occupational health laboratory also carries out tests to protect workers from hazardous substances in the atmosphere, from noise pollution and many other hazards. A small laboratory tests materials from mattresses, pillows, paddings and other material, which the customer cannot check, to ascertain that the material is clean and properly labeled.

What services do the public health laboratories give? Over three million examinations were performed in 1970 by the Division of Health laboratories. These were extensions of medical practices carried on by licensed physicians, veterinarians, county health officers, public health professionals of county health departments and law enforcement officers.

The Work of Detectives — Chemistry

The work of the chemists is often routine but without this service the laboratories would be quite ineffective and incomplete. But chemistry is necessary in answering such questions as

- Is the material in a suspected cigarette really marijuana?
- Will the impurities found in the contents of a can also be found in the blood of a boy, indicating that he had been sniffing the contents?
- Will the blood serum be positive for PKU? Can a child be saved from a life of mental retardation?

The chemistry units of the Division of Health's laboratories perform a wide range of examinations on a variety of substances. Included are blood specimens from prenatal clinics for hemoglobin, from diabetic clinics and screening programs for blood sugars, and from heart clinics

for uric acid and cholesterol. All of these tests are in medical areas which are of growing concern to county health departments. The laboratory also does chemical water analysis for mercury, cadmium and other metals.

The units have a volume of work from hospitals and pathologists to establish the causes of death or illness in many persons. Tests are run for arsenic, heavy metals, sedatives, drugs and barbiturates. Bloods are tested for overdoses of prescription drugs which may have been taken innocently by someone, or by someone who wanted to commit suicide.

Substances are brought in by law enforcement officers and physicians for examinations for suspected narcotics. Arrangements for the testing of such substances vary in different parts of the state. The Tampa Regional Laboratory has received a grant from the Region V Interagency Law Enforcement Planning Council that gives financial support for the testing of narcotics. Funds for a chemist in the Central Laboratory are supplied by the Duval County Medical Examiners Office to run tests on substances from Duval, Baker, Nassau and St. Johns Counties. Law enforcement agencies also supply money for drug analysis to the Brevard County Health Department. The Central Laboratory runs narcotic tests for other counties.

Most of the drug analysis at one time was routine, but in recent years the public health laboratories have had a tremendous increase in the number of specimens of synthetic and hallucinogenic drugs. There are fewer specimens of morphine and opium which are stolen from pharmacies.

The work of drug and narcotics detection and analysis has been greatly advanced by the work of two chemists of the Central Laboratory who have carried on research on materials for which there had been no previous methods of testing. Although there is a method of detecting morphine in urine, the chemists discovered a new and quicker way of testing morphine in bloods.

The chemistry unit is receiving an increasing number of calls from private business and industry to screen prospective employees for possible drug addiction. Individuals who are admitted to county jails may be tested to see if they are on drugs — and/or which drugs they are using.

A GAS CHROMATOGRAPH — A chemist injects a specimen into this instrument that will analyze the components of the substance. Data on the specimen come out of the instrument on a graph.



The chemists recently were instrumental in proving that a boy, who was found dead in a closed car with a blanket over him, had been sniffing the contents of a can found in the car. An extremely sensitive instrument, a gas chromatograph, indicated that the can contained toluene, solvents and certain other impurities. The same substances were found in the blood of the boy.

The chemists are also responsible for the testing of the proficiency of laboratories and individuals who test blood samples from automobile drivers for alcoholic content. Under the Implied Consent Law, the laboratory sends samples of blood with an unknown quantity of alcohol to holders of permits every three months. The samples have already been verified by out-of-state authorities. The purpose of the proficiency testing is to keep the laboratories on their toes and to offer help if the laboratories are having difficulty with their examinations. It is not to penalize the laboratories; the Division of Health desires that they keep valid licenses.

Water, Food and Bacteria

Bacteria are either good or bad. Some are useful and necessary in nature. Others can be ruthless and destructive in their efforts to gain an upper hand in the human body. The laboratories are constantly

looking for and identifying these tiny unwelcome hordes. They enter the body through food and water and it is the work of the sanitary microbiology units to detect these members of the "little world."

Public water supply facilities are required by law to submit specimens to the laboratories for testing. These are collected and sent in by county health department sanitarians, sanitary engineers and water plant operators. Sometimes owners of private water wells send in samples for testing — especially when they are having problems with the quality of the water. Samples are tested in all of the public health laboratories, the Brevard and Pinellas County Health Department laboratories, and several other county health departments — which only do water testing. Most public water supply facilities have small laboratories which test the water. These laboratories are routinely checked by the sanitary microbiologists.

The samples are tested for coliform bacteria, which is an indirect test for human pollutions that could carry enteric pathogens, such as dysentery, cholera and typhoid. The tests are done on large numbers of water samples. When needed, the laboratories can test the samples for specific pathogenic bacteria. They also test surface waters for bacteria from sewage wastes, which in turn affect bathing, recreational and shellfish waters and spoil the scenery.

Milk samples are picked up by county health department and Department of Agriculture and Consumer Services sanitarians along

Red Tide and Oysters

The Red Tide, an organism that causes the water to turn red, occasionally appears along the Gulf of Mexico coast between Pinellas and Charlotte Counties. This is the only area of the seacoast where this phenomenon occurs. The organism, when it suddenly multiplies over the shellfish beds, causes a "ciguatera-like poisoning" in shellfish. Although two years have passed since the last outbreak of Red Tide, the Division of Health continually monitors for this poison. This is the same type that occurs occasionally in barracudas; a similar type of poisoning occurs in red snappers from the Marshall Islands in the Pacific Ocean.

the route milk travels — from the cows to the consumer. Most milk processing plants have their own milk-testing laboratories. These are regularly checked by the state sanitary microbiologists to see that they perform their tests according to procedures.

Milk is tested for

- bacteria — to determine if the milk is processed and distributed under sanitary conditions;
- butter fat — according to standards set by law;
- proper pasteurization; and
- quality of milk — to see if it is up to pure standards — or if it has been adulterated with water.

Foods are tested for sanitary quality or food poisoning. A program by the sanitary microbiology units check delicatessen foods — sandwiches and salads — to see if they are prepared and stored under proper, sanitary conditions.

Years ago, when turkeys were first introduced into Florida school lunchrooms during the holiday seasons, the Division of Health could expect two or three outbreaks of food-borne illnesses each year. After instructions were given by county health department sanitarians on how to properly handle these foods, the outbreaks ceased. The food workers had learned where they made their mistakes.

Because county health departments conduct training courses for food service workers; better understanding of food problems by the food industry; and better education of the public, there have been no major outbreaks of food-borne illnesses in recent years. The only cases now involve two or three persons and are usually due to poor food handling.

The Division of Health laboratories receive many requests each year to test spoiled foods. These usually are not tested for food poisoning because it is obvious they contain a wide variety of bacteria. A person will not usually eat food that is spoiled — he simply cannot get it past his nose. However, he may eat foods that will make him ill because foods containing bacteria that cause food poisonings have no



CHECKING WATER SAMPLES — Water samples are put through a biological test that uses membrane filters.

unusual odor, no change in appearance, no change in taste. He may be completely unaware that he has eaten the bacteria — until he becomes sick.

People frequently eat and enjoy oysters on the half-shell. They have been called "food of the gods." To protect this "food" the public health laboratories continually test samples of oysters and waters from oyster-growing beds to make sure they are not polluted with human wastes. Specimens are picked up from retail stores, packers, wholesalers, and brokers by county health department sanitarians and sent into the laboratories.

Bacteria — Identifying and Diagnosis

What does a physician do when he has a patient that is ill and the physician is in need of a correct diagnosis? He usually sends to the public health laboratory — or to a private laboratory — a culture of sputum, blood, throat or stool specimen from the patient.

Specimens must be sent in by physicians, county health departments or other practitioners of the healing arts. The results of the tests are sent only to them.

The laboratory unit that carries out these diagnostic bacteriological tests examine

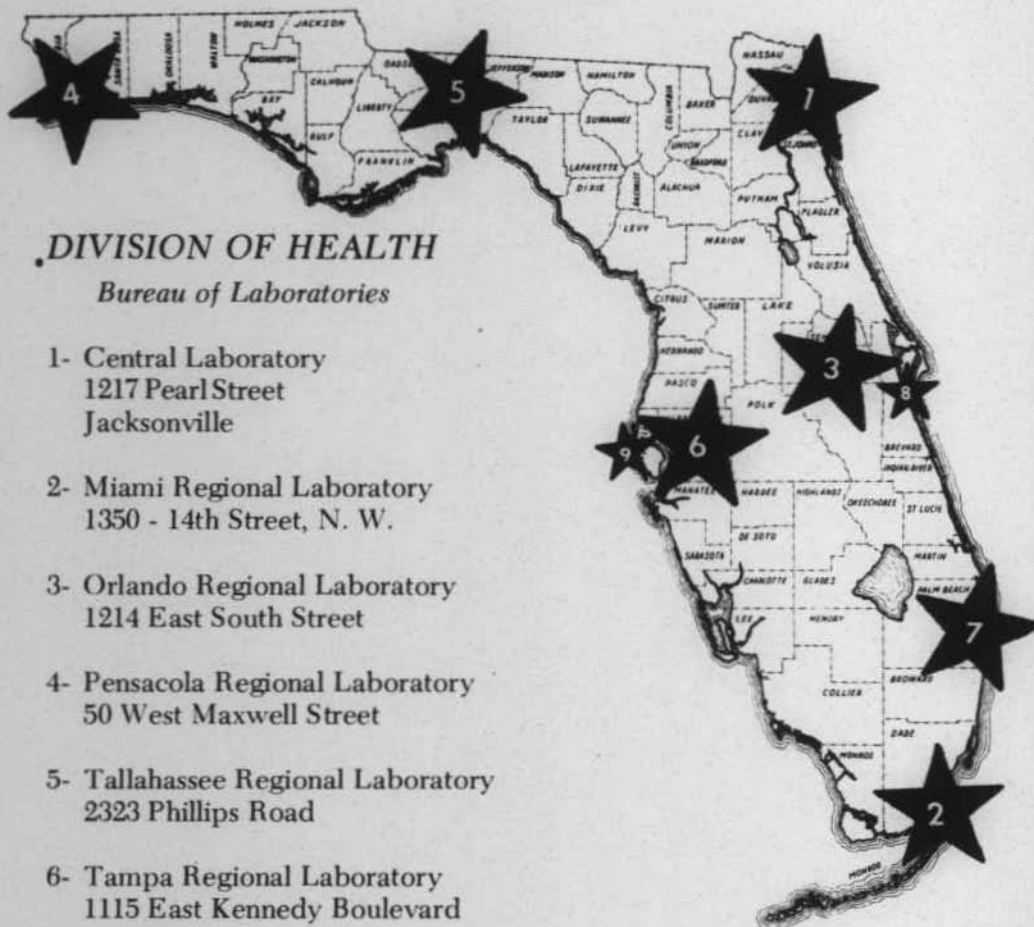
- fecal specimens for salmonellosis, typhoid and shigella;
- nose and throat cultures for diphtheria and streptococcus;
- sputum, throat washings, aerosol lavage and urine specimens for tuberculosis;
- urine cultures and miscellaneous specimens for pathogenic agents; and
- cultures from wounds for gas gangrene anaerobic bacteria.

The unit in the Central Laboratory receives over 2,000 specimens each month for identification. Many private laboratories, which are not equipped or do not have the time, personnel or money to do in-depth studies of bacteria, send specimens to the Division of Health laboratories. The staff is not only responsible for identifying the bacteria which make people ill, but it needs to study the bacteria for future references. This type of preventive medicine is one of the responsibilities of the Division of Health.

Gonorrhea, which can cause blindness, encephalitis, sterility and other complications, is one of the communicable diseases that were under study at the time the public health laboratories were established. Today, the spread of this disease is epidemic. The bacteria that is

An Ounce of Prevention

The public health laboratories perform a test for lactobacilli which often accompany dental caries in children. Many dentists have this service for their patients. Three saliva specimens — each taken two weeks apart — are required from each child at the time permanent teeth begin to appear. If excessive lactobacilli are present, preventive measures can be taken through special foods to reduce the number of lactobacilli in the mouth and cut down on the decay of the teeth.



DIVISION OF HEALTH

Bureau of Laboratories

- 1- Central Laboratory
1217 Pearl Street
Jacksonville
- 2- Miami Regional Laboratory
1350 - 14th Street, N. W.
- 3- Orlando Regional Laboratory
1214 East South Street
- 4- Pensacola Regional Laboratory
50 West Maxwell Street
- 5- Tallahassee Regional Laboratory
2323 Phillips Road
- 6- Tampa Regional Laboratory
1115 East Kennedy Boulevard
- 7- West Palm Beach Regional Laboratory
H. W. Holley Tuberculosis Hospital
West Lantana Road
Lantana

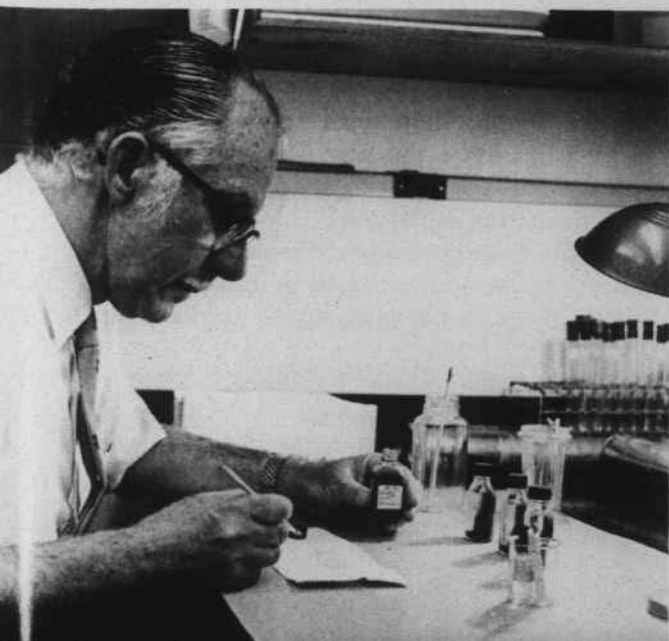
COUNTY HEALTH DEPARTMENT LABORATORIES

- 8- Brevard County Health Department
1744 South Cedar Street
Rockledge
- 9- Pinellas County Health Department
500 Seventh Avenue, South
St. Petersburg

responsible for gonorrhea is difficult to grow. It needs to be inoculated almost immediately into the culture media once the bacteria is collected from the patient. Because the bacteria frequently die during shipment, cultures normally cannot be grown from specimens received in the mails. But newer procedures are being developed that will allow sending them to distant laboratories for identification. These will help identify people, especially women who are silent carriers of the disease.

Public health and medical people once thought that antibiotics would wipe out many diseases that for centuries have plagued mankind — especially those diseases that are caused by bacteria and viruses. However, many bacteria have developed resistance to the antibiotics and continue to cause disease. There is a critical need for trained personnel in the broad field of microbiology — especially for those who are highly skilled. More will be said later about the training of laboratory personnel.

The diagnostic bacteriology laboratory does the typing of salmonella bacteria from all areas of the state. This is so it can detect the epidemiological spread of enteric diseases (diseases of the digestive system). The Central Laboratory unit also serves as a diagnostic reference laboratory for diphtheria. There are always sporadic outbreaks of the disease and the laboratory stands ready to identify cultures of such bacteria and to advise the physicians as to whether a patient needs diphtheria antitoxin.



TEST FOR GONORRHEA

— A microbiologist places a specimen from a patient on a slide. He is making a laboratory determination for gonorrhea, which in turn, will help a physician make a diagnosis.

Recent studies have linked anaerobic organisms to cancer. To help in these new studies, the Division of Health sends the medical histories and cultures from Florida patients to the Center for Disease Control of the U. S. Public Health Service in Atlanta, Georgia.

Viruses — Diagnosis and Surveillance

Some of the most common and most serious infections today are caused by minute organisms called "viruses." They can only be seen by the "electronic microscope" — which has magnifying powers up to 130,000 times. These viruses are organisms that cause influenza, rubella, polio, rabies, measles and a variety of other diseases.

The two major functions of the virology unit of the public health laboratories are

- diagnostic — to assist private physicians and county health departments if they need help in diagnosing a viral disease in humans; and
- surveillance — to anticipate, locate and identify infections in mosquitoes, birds and other animals which may cause a possible epidemic in the state.

The laboratories do not work directly with patients themselves, but work under the written orders of a licensed physician or county health officer. There are other virology laboratories in the state, but the Central Laboratory unit carries on a wider variety of tests than any other laboratory.

Virologists from the Division of Health serve as consultants to physicians who have patients for whom they wish specimens to be tested for a virus. The virologist can advise the physician on how and when to collect the needed specimens and how to send them into the laboratory. For example, specimens for "isolations" (blood or serum, throat washings, feces, effusions, biopsies, necropsy tissues, fluids from vesicles or lesion scrapings) need to be sent as soon as possible after the onset of illness. They usually need to be kept frozen during shipment.

The virologists need clinical information, such as history of influenza, severe headaches, etc., so they can interpret the laboratory

HELPFUL RESIDENTS —

These lively occupants of the animal house are unaware that they will help the virologists of the Division of Health laboratories make a determination of virological diseases.



information for the physician. If necessary, the Division of Health will send a public health physician to assist in the taking of specimens and to establish the cause of the disease.

Several months ago, the Division of Health received a telephone call from a South Florida county health department. Twenty-five to 30 per cent of the grammar school children were absent. They had skin rash, fever, vomiting and sore eyes. Mothers and school officials were naturally upset. Because they did not know what caused the disease, they were frightened and this turned into mass hysteria. The county health officer asked for assistance. A pediatrician from the Division of Health went to the county, helped allay the fears, and brought back specimens to the laboratories. The disease turned out to be a mild form of viral rash caused by an ECHO virus.

Every day the Division of Health laboratories receive calls concerning rabies. People desire and buy exotic pets — such as mice, guinea pigs, hamsters, monkeys, skunks and ocelots. When an animal is afraid, it will turn on its owner and bite. Children frequently scare cats and dogs which bite them in self-defense. Everyone then calls the county health department or Division of Health for advice — and they should.

There is one case on record when a family pet — a collie dog who adored the family's five children — suddenly bit one of the children.

It died suddenly. Although the dog had had its rabies vaccine shot every year, rabies was suspected because of the dog's behavior. Bats from the area had been found heavily infected with rabies virus. Most probably the dog had been bitten by one of these bats, and because of the over-powering amount of rabies virus in the bite, the dog had developed rabies. This is a rare case, but it points out the importance of examining animal heads for rabies.

When a human is bitten by an animal, the animal should be confined for a period of time. If there is a suspicion that the animal might be positive for rabies, the person's physician should be notified at once. If the animal dies, the head should be sent to the laboratory for rabies tests. In one case, the virology unit could not contact the proper authorities by telephone, and the Florida Highway Patrol was called. A patrolman was asked to deliver the information that the tests were positive so that the child could be taken to a physician for the necessary treatment. The Division of Health laboratories perform microscopic and fluorescent antibody tests for rabies.

Due to the increased demands for determining the immunity of prenatal patients to rubella (German measles), the virology unit has limited the routine testing to county health department prenatal patients. The rubella service is available to all physicians for diagnostic consultation.

3000 Specimens a Day — Serology

Syphilis, a very dangerous venereal disease, is highly communicable. When allowed to go untreated, it can cause blindness, heart disease, paralysis, insanity and death. Therefore, the Division of Health is very much concerned about its spread, which is only by intimate or sexual contact, or kissing. The Central Laboratory, all of the regional laboratories, and a number of private laboratories are equipped to provide tests for syphilis antibodies in blood specimens received from county health departments and private physicians.

A syphilis test is required by law before a couple is married, when a mother is expecting a child, and when an individual is applying for a health card. The serology unit of the public health laboratories also tests specimens as part of a routine examination and in suspected cases of syphilis.

The serological test for syphilis is only an aid to help the physician in diagnosing the disease. Three steps are necessary in order for a physician to make a positive determination of syphilis — a thorough physical examination to determine positive symptoms of the infection, a history of exposure, and a positive serological test. The non-treponemal test, the usual screening test for syphilis is fairly specific, but it may also show antibodies in the blood which are produced by several other diseases.

If a confirmatory test is required or the patient is suspected of having a false-positive or a false-negative result, another test (fluorescent treponemal antibody absorption) is available.

Florida also has some 370 private laboratories which are approved to do tests for syphilis antibodies. The serological unit of the Central Laboratories check their proficiency by having them check-test 10 unknown specimens four times a year. The serology unit also prepares control serums for the six regional laboratories to check sensitivity of the antigens that are used to test for syphilis antibodies.

The unit also does other blood examinations, including Rh-factor typing for county health departments' prenatal clinics. Hospital and blood bank laboratories offer this service to physicians. This screening test helps prevent complications in mothers and newborn babies which lack the Rh factor.

The Search for Animal Parasites

Animal parasites, such as hookworms, pinworms, stomach worms, intestinal amoebae and others, have loomed large in Florida's public health picture since the early days of the Division of Health. The investigations of these parasites, which directly affect the health of an individual, is the responsibility of the parasitology units of the state laboratories.

Approximately 2,500 stool specimens are examined each month by the unit in the Central Laboratory for the evidence of worm ova and protozoan cysts which may be present in children and adults. These specimens are sent in by county health departments, clinics, private physicians, clinical laboratories and hospital outpatient clinics. The parasitology units report laboratory findings to physicians

who make a clinic diagnosis, carry out treatment and continue observation of the patients. Examinations for these parasites are carried out by the Central Laboratory and the six regional laboratories.

Although one stool specimen may be diagnostic, three consecutive specimens are preferred by the laboratory so that there would be a greater chance to recover the diagnostic stages of the infection.

Laboratory Improvement Program

Public health and clinical laboratories exist for the purpose of helping people. They provide essential services to practitioners of the healing arts by offering vital information necessary to determine the nature, cause and extent of the patient's condition.

However, if the clinical laboratories give unreliable and inaccurate reports, they may cause unnecessary anxiety, suffering, financial burdens and even contribute directly to people's deaths.

To protect the public, the Division of Health has been given the responsibility by the Legislature to protect the public and individual health, safety and welfare from the hazards of improper performance

CHECKING BLOOD SERUMS — Several thousand blood serums are tested daily in the public health laboratories in the search for syphilis.



by clinical laboratories. The law requires the registration of clinical laboratories and the licensing of clinical laboratory directors, supervisors, technologists and technicians, according to certain rules and regulations.

The only types of laboratories the Division of Health does not register are federal laboratories, those which exist only for research, and those which are operated by physicians for the diagnosis and treatment of their own patients.

A total of 535 clinical laboratories is registered with the Agency. Over 5,200 laboratory personnel are licensed to work in these laboratories. Since the inspection of laboratories under the Florida law began in 1967, some 120 medical laboratories have been inspected by the Division of Health to determine whether they meet qualifications as providers of laboratory services under the Medicare Law.

Inspection includes the checking of the qualifications of personnel; determining the standards of performance of the laboratory; ascertaining the proper results of proficiency testing; reviewing technical procedures. If necessary, the Division of Health assists in correcting any unsatisfactory condition which may be uncovered.

Thirteen private laboratories in Florida have been qualified to do tests on specimens received through interstate shipment. These will be inspected by the Division of Health under a cooperative agreement with the Center for Disease Control, and registered under the Federal Clinical Laboratory Improvement Act of 1967.

Qualifying the Breath-Testers

The drinking driver has long been a concern to public health, safety and police officials. Steps to control the problem were taken in Florida when the Legislature passed the Implied Consent Law. This law states that when a driver accepts a Florida driver's license, he has given his consent to submit to an approved chemical test of his breath or blood for blood alcohol levels at the time he is arrested for any offense while driving an automobile.

If the driver has a blood content of 0.05 per cent or lower, he is presumed not under the influence of alcohol. He is deemed under the influence of alcohol if the blood level is 0.10 per cent. Any amount

in-between must be considered presumptive along with other "competent evidence."

Who is empowered to test the alcoholic content of a driver's breath? The Division of Health was given the responsibility of approving methods of testing police officers to find if they are competent, to certify them as qualified breath-testers, and to approve breath-testing instruments.

Three-year permits are issued by the Division of Health to technicians qualified to test breaths. Each applicant must successfully complete a 40-hour course in "chemical tests for intoxication" that is taught by the State Department of Education, and to demonstrate annually a proficiency in performing the breath test. Every three years the technicians must pass a re-qualifying course given by the Department of Education.

The first round of proficiency testing was completed in late 1970, and to date the Division of Health has registered over 2,250 policemen and deputy sheriffs as breath-testing technicians and 100 instructors who teach the courses. On-site visits are made by inspectors to police departments and sheriffs' departments where the breath-testing instruments and proficiency of the men are examined.

An advisory committee makes recommendations to the Division of Health as to those instruments best suited for breath analysis. The Breathalyzer, an instrument in which the suspect blows into a mouth-piece, and the Sober-Meter, which is a breath-collecting unit, are the two most commonly used in Florida.

Important Services

The work carried on by the various units of the laboratories is important in the diagnosing and treatment of disease. But the work could not be accomplished without

- the animal colony for the isolation of viruses;
- the proper media for the growing of bacteria;
- sterile glassware and instruments to use in laboratory testings;
- the mailing of containers to physicians and county health departments; and
- efficient and accurate transcribing of records.

With the exception of the one at the Epidemiological Research Center, the animal colony at the Central Laboratory is the only one in the public health laboratories of the Division of Health. The mice are handled with Tender Loving Care. The animal house, which is the home of the mice and a few chickens and guinea pigs, has controlled temperature and humidity. An extreme change in temperature, especially upward, would harm the mice.

Because the mice are susceptible to many human diseases, they are kept isolated from visitors. While not germ-free, the mice are kept in a state of good health. They must not have any diseases that will interfere with the laboratory tests for which they are used. Such results must give a true picture of what the virologist is looking for.

The media on which bacteria is grown must be correctly prepared and maintained in petri dishes and test tubes. If the media is not right, all of the specimens sent or brought into the laboratories would not receive the proper tests. They might as well be lost in the mails. All of the reagents used by the laboratory personnel are important to the work. It is the duty of the Central Service unit to see that they are properly prepared.

If a test tube is not properly sterilized and has some bacteria in it from a previous test, the results of any subsequent examination will not give a true picture of the test. Specimens, such as monkey kidney cells, which are necessary in virus examinations and cost several hundreds of dollars each month, would be worthless if they were planted in unclean equipment. In order to carry out their responsibilities, professional workers at the laboratories need sterile glassware and instruments. Those who sterilize the media and prepare the equipment are an important part of the laboratory team.

Likewise, the clerical unit is important in transcribing records and laboratory diagnoses made by professional personnel. If a specimen sent in by a physician on Mary Smith is positive, and is attributed to John Jones, who had a negative test, the effects of this error may cause misdiagnosis and possible dire consequences. As with the keepers of the animal colony, those who make the media, and clean the glassware, the work of the clerks is equally as important as that of the professional worker.



2000-A-MONTH — Specimen containers are shipped to county health departments for distribution to physicians. The containers are wrapped with the proper laboratory data blanks (left) and then packaged and shipped (right).

Submitting Specimens

The results of the laboratory examinations depend to a great extent on the condition of the specimens sent into the Division of Health. Knowing how and when to send specimens is important. The Division of Health supplies eight different specimen containers, complete with appropriate mailing tubes (except water sample bottles) for the submitting of specimens. With a few exceptions, most of these containers are available from county health departments which furnish them to private physicians upon request.

Of the approximately 2,000 specimen containers sent out each month, only about 50 per cent of those given to county health departments and private physicians find their way back to the laboratories. This makes it quite expensive for the Division of Health, but if the health agency were to charge for them, the cost of maintaining accountability would be even greater. Specimen containers are not always in ready supply. In the past, the Division of Health has had difficulty in obtaining the containers from manufacturers because of competition with the space program and other governmental agencies.

Training Laboratory Personnel

The work of the laboratories is exacting. There is no room for

error in the handling of bacteria, viruses, parasites and others of the little organisms that make us sick. Where laboratory work is concerned, a little learning can be a dangerous thing. There is a continual need for qualified laboratory personnel.

To help private clinical laboratories maintain the high standards required by law, the public health laboratories give technical workshops, seminars and short courses in many areas of the laboratory work, including rubella, parasitology, narcotics and toxicology testing, food microbiology, hospital infections, coliform testing of water by membrane filter techniques, venereal disease detection, and Darkfield workshops.

Bench training, which gives valuable, practical experience, is provided to physicians, county health department personnel, medical technologist students and other scientific personnel. All of the units in the Central Laboratory continually work with the educational programs to better the laboratory "industry."

Mirroring Public Health Programs

The public health laboratories' early assignments were to help defeat communicable diseases. Although many of the infectious diseases are still with us, they are not so important in the public health field. This is because of improved environment, the development of antibiotics, vaccines, and more knowledge of diseases.

The mission of public health and the laboratories has changed to preventive, including health profile screening for such diseases as heart disease, diabetes, cancer, arthritis and emphysema.

For example, the chemistry unit runs some 300 blood specimens a week as a yardstick for determining those persons who are potential candidates for heart attacks. The results of these tests are relayed to the physician who takes into consideration

- the types of food the patient eats;
- the amount of exercise he gets;
- the results of electrocardiogram and blood pressure tests, and when indicated, makes
- recommendations for treatment.

The work of the laboratories also has shifted to surveillance — such as the case of arthropod-borne encephalitides. The fear that an outbreak of the dreaded St. Louis encephalitis would appear again has been on the mind of public workers. It last appeared in Florida in 1962.

The Division of Health's laboratories, however, are continuing to develop a four-way mission to protect the people in Florida:

- clinical laboratory improvement programs — which will assist the private laboratories to maintain quality control and to do the work the public health laboratories cannot do;
- reference laboratory service — which means that the Central and regional laboratories will screen and identify those exotic and unusual bacteria which smaller laboratories cannot handle;
- routine laboratory services to county health departments and indigent people who cannot afford the services of private physicians and laboratories; and
- research and development which will find new methods of carrying out old procedures and developing new ways of testing for problems which are unsolved.

To help the Division of Health and county health departments carry out their functions as public health agencies, the laboratories need the support of the people of Florida, the Legislature and public officials. Only through the latest methods of understanding and fighting diseases by means of the laboratories, can the Division of Health do its work of protecting the people.

Screening for PKU

Every baby born in Florida should be tested for phenylketonuria (PKU), a condition that can cause mental retardation. The sanitary microbiology units in the Central Laboratory and the Miami Regional Laboratory, plus many hospital laboratories, perform the Guthrie screening test to detect this condition. To do the test the physician obtains a trace of blood from the baby's heel after the infant has been on milk, including mother's milk, for 36 hours. If the test is positive or suspicious, a second Guthrie test is performed. If the results do not change, a chemical blood test is done to confirm the diagnosis.

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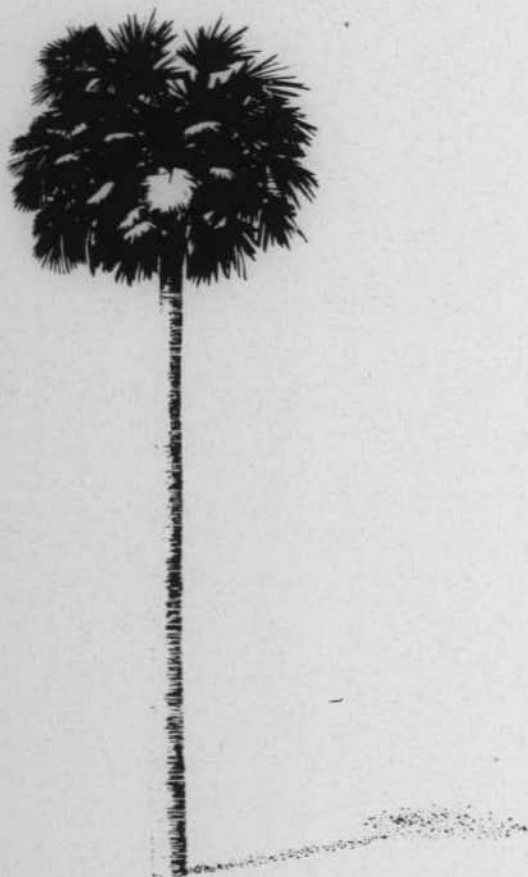
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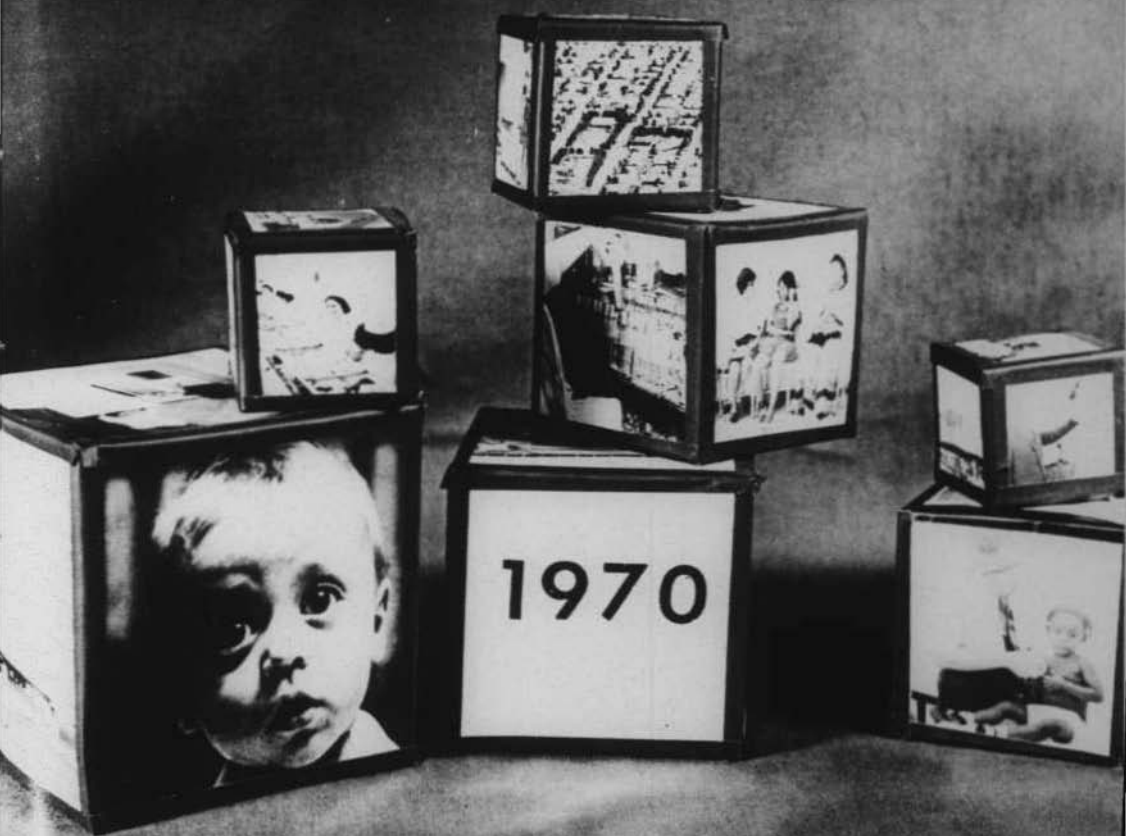
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**Division of Health
of the
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FLORIDA HEALTH NOTES



VOLUME 63 — NO. 6

JUNE

1971

Building Public
Health in 1970

FLORIDA STATE LIBRARY

Building Public Health in 1970

You probably have heard the childhood question, "What are little girls made of?" and the answer, "Sugar and spice and everything nice." You, also, have probably heard the counter question, "What are little boys made of?" and the reply, "Sticks and snails and puppy dogs' tails."

But have you heard the question, "What is public health made of?"

Of what is public health built? Is it buildings? People? Money? Programs? Services? All of these things are necessary to create public health. But there is more.

To some people, public health means a large government agency — cold, impersonal — located in a distant city. You may think that you have no contact with public health.

But public health is as close as the water tap in your home, the milk on your table, the pillow on your bed. It is represented by the neighbor's dog that is vaccinated against rabies, the hospital in which you may be a patient, the sewerage system that carries human waste from your home, the immunization given your children, the safety of the products you use.

The state agency, the Division of Health of the Department of Health and Rehabilitative Services, which is located in Jacksonville, has a partner in your county — the county health department. Together they are interested in the health of every Floridian and each of the 21 million tourists that visit the Sunshine State.

Prior to the formation of the old State Board of Health in 1889, public health was carried on by a multitude of county and municipal boards of health. Formal records, which show how public health was built in Florida, date back to 1889 and many of them still exist in the medical library of the Division of Health.

The foundation of the State Board of Health was laid in such communicable diseases as yellow fever and malaria. From these early beginnings, regional offices were organized to bring public health to the people. County health departments came into existence in the 1930's and 1940's. Through these 67 county health departments public health became a personal matter.

Over the years public health in Florida has been under construction — just like a building. It has been planned and built — program by program — brick by brick — over the years. Just as a building under construction has new features added, so programs and services have been added to Florida's public health structure. Today, the Sunshine State has one of the best health agencies in the nation.

This issue of **Florida Health Notes** will tell you of the building of public health in Florida in 1970. The facts are taken from a lengthy document, the **1970 Annual Report of the Division of Health**.

Help for Mothers and Children

Since 1918, the State Board of Health (now Division of Health) has had a program of maternal and child care that is charged with the responsibilities of controlling and reducing morbidity and mortality in mothers and children. This program is one of the foundations of the public health structure.



FLORIDA HEALTH NOTES

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Prenatal, postpartum, infant and child care continued to grow in county health departments in 1970. Sixteen new infant and child clinics were established in Baker, Bay, Brevard, Broward, Dade, Escambia, Hillsborough, Madison, Marion and Palm Beach Counties. Obstetrical services continued for expectant mothers. These included early care through prenatal, postpartum and inter-conceptual services, family planning and nutritional guidance.

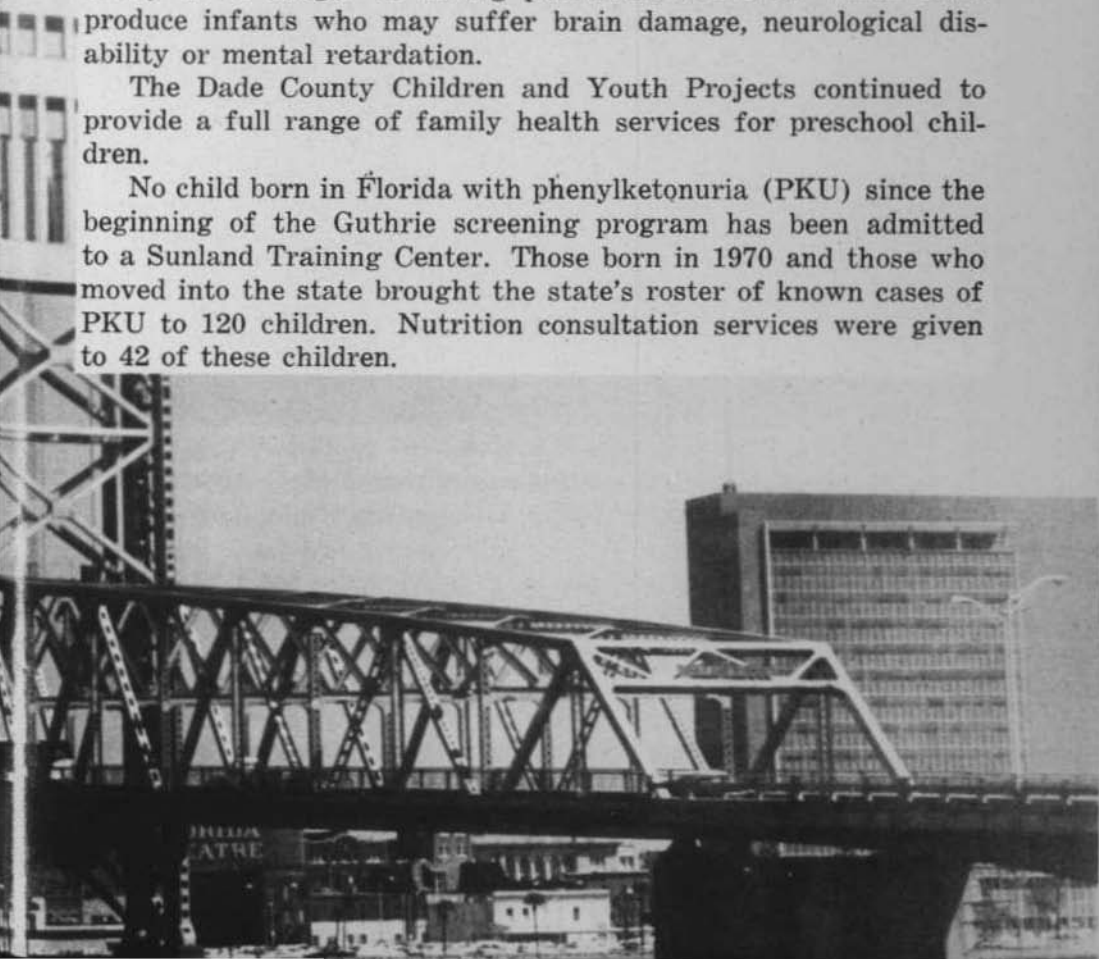
Of the more than 228,000 indigent women of childbearing age in Florida, 53,884, or about 23.6 per cent, were provided with oral contraceptives, intrauterine devices, or other contraceptive methods.

Classes for the continued education of pregnant school-age girls were started in Broward County, and continued in Sarasota, Palm Beach, Dade, Brevard, Orange and Pinellas Counties. Planning for such classes was started in Jacksonville.

Five special maternal and infant care projects, financed by some \$3.8 million in federal and local funds continued to identify expectant mothers who were developing problems during pregnancy or in danger of having premature deliveries which could produce infants who may suffer brain damage, neurological disability or mental retardation.

The Dade County Children and Youth Projects continued to provide a full range of family health services for preschool children.

No child born in Florida with phenylketonuria (PKU) since the beginning of the Guthrie screening program has been admitted to a Sunland Training Center. Those born in 1970 and those who moved into the state brought the state's roster of known cases of PKU to 120 children. Nutrition consultation services were given to 42 of these children.




Nursing and Nutrition

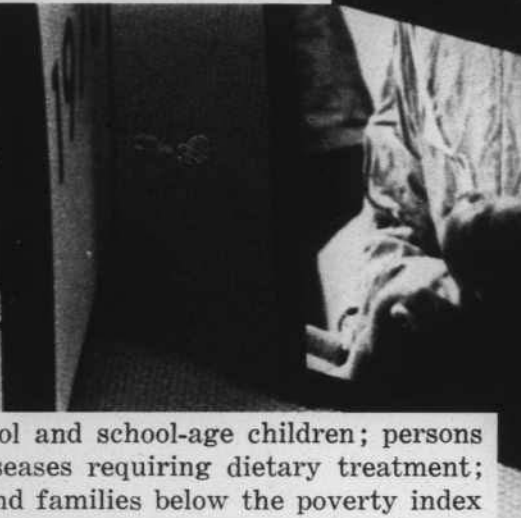
Public health nurses, key workers of the county health department, provide direct services to patients in homes, clinics, schools, nursing homes and industrial plants. Since the advent of Medicare, nursing care of the sick at home has greatly increased.

The number of midwives dropped to 123 in 1970. There were 228 licensed midwives in Florida ten years ago. The reduction was partially due to the availability of hospitalization for more indigent patients through federal programs. There were 20 nurse-midwives in Florida in 1970 who played an important part in maternal and child care.


Thirty-two Division of Health nutritionists provide consultation, counseling and education services to some 85,000 professional persons, patients, students, and the public in 64 counties. Those who received priority for dietary guidance were nutritionally high risk groups, such as pregnant women,



infants, preschool and school-age children; persons with chronic diseases requiring dietary treatment; older persons, and families below the poverty index level.

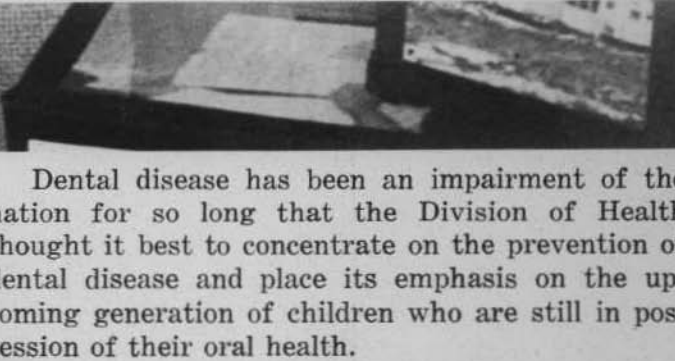


A contract was negotiated with the U. S. Public Health Service to conduct a nutritional status evaluation and remedial outreach program for migrant agricultural workers and their families in Palm Beach and Lee Counties. The program included medical and dental examinations, wrist bone x-ray

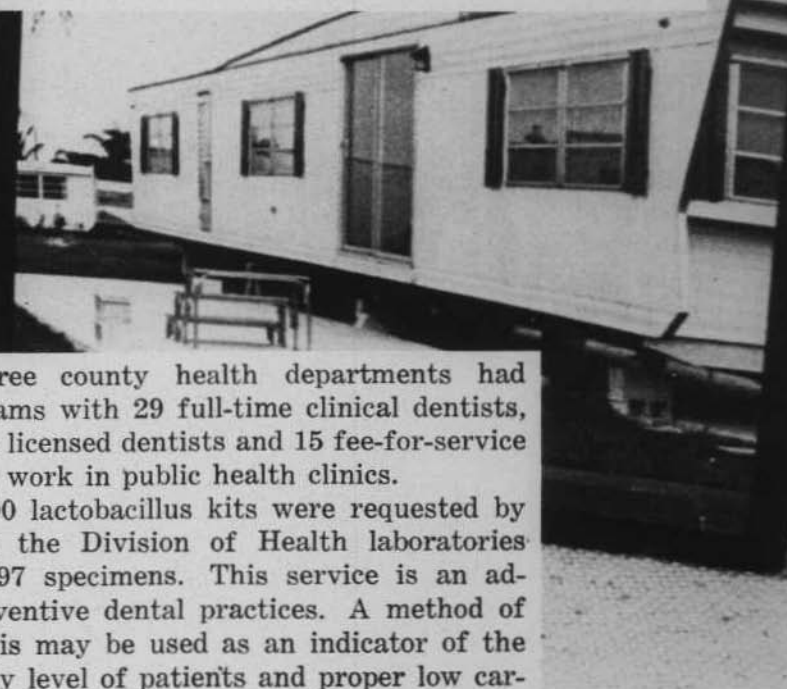


for evidence of malnutrition, biochemical tests for blood and urine levels of key nutrients, and assessments of nutrient quality of food intake of some 2,200 adults and children.

The Division of Health, through its Nutrition Section, conducted a state-wide food pricing survey which established minimum costs for nutritionally adequate family food budgets. These standards were used in counseling low income families and assisting the Department of Health and Rehabilitative Services' Division of Family Services to establish food allowances.



Dental disease has been an impairment of the nation for so long that the Division of Health thought it best to concentrate on the prevention of dental disease and place its emphasis on the upcoming generation of children who are still in possession of their oral health.



Thirty-three county health departments had dental programs with 29 full-time clinical dentists, six part-time licensed dentists and 15 fee-for-service dentists who work in public health clinics.

Over 1,800 lactobacillus kits were requested by dentists and the Division of Health laboratories analyzed 1,397 specimens. This service is an adjunct to preventive dental practices. A method of saliva analysis may be used as an indicator of the caries activity level of patients and proper low car-

bohydrate diets can be prescribed to reduce tooth decay rates.

Some 2,400 fourth, fifth and sixth grade students in Baker, Clay and St. Johns Counties participated in a pilot study to test the effectiveness of a self-administered prophylactic paste for children. The test will conclude in October 1971.

Assistance for the Aged

An important part of the public health "building" is the assistance given to elderly people. Aging is a series of developmental stages which occur from birth to death. Eighty per cent of the persons over 65 have one or more chronic conditions; 49 per cent have a chronic condition that limits their activity; and 16 per cent are unable to carry on any major activity.

There are some 850,000 persons over 65 in Florida. Many of these are on fixed incomes and are caught up in the stream of high cost of living, high taxes, and the disability of chronic diseases.

The Division of Health and county health departments have screening programs that help find these people. Components of these programs include health education, preventive screening, early casefinding, home nursing service, nutritional assistance, and physical rehabilitation.

Cancer continued as the second leading cause of death. It was estimated that over 13,600 persons in the state died of cancer during 1970. In the past decade, the death rate of cancer of the lungs and respiratory system almost doubled, while the rates for some other sites were down.

The cervical cancer screening program tested over 52,000 women in 57 counties; 439 were found suspicious for cervical cancer,



and 100 were positive. The 25 tumor clinics located in many of Florida's leading hospitals saw 30,869 cancer patients for diagnosis and treatment. The Division of Health, county health departments, and American Cancer Society, Florida Division helped provide some of the staff for the clinics.

An estimated 1,300 Florida residents died of diabetes during the year. Approximately 3,280 medically indigent patients received all or part of their insulin from the state public health program through the county health departments or approved hospital clinics. The various county health departments screened over 50,000 persons through special and routine campaigns in physicians' offices, health and county fairs, and community screening programs.

The aim of the heart disease control program is to reduce morbidity and mortality from Florida's major killer. Some 27,000 persons were estimated to have died of diseases of the heart in Florida in 1970. Screening programs on arteriosclerotic cardiovascular-renal diseases were held in 22 counties. Blood specimens were examined in the Central Laboratory and EKG tracings on some 11,200 individuals have been interpreted since the program began.

Screening for hypertension, a special program in Washington, Walton and Holmes Counties, was continued in 1970. Since the beginning of the program over 14,000 persons have been screened, and 1,194 were referred for diagnosis and/or treatment.

Glaucoma is the second leading cause of blindness — next to cataracts. Six full-time glaucoma screening centers were in operation in Broward, Duval, Palm Beach, Pinellas, Polk and Volusia Counties. Over 55,600 persons were tested and 1,191 were referred for diagnostic evaluations. Visual acuity problems and other diseases of the eyes were also detected and referred for treatment.

A total of 353 certificates was issued by the Division of Health in 1970 to individuals who sold and fitted hearing aids; 151 trainees were issued temporary certificates.

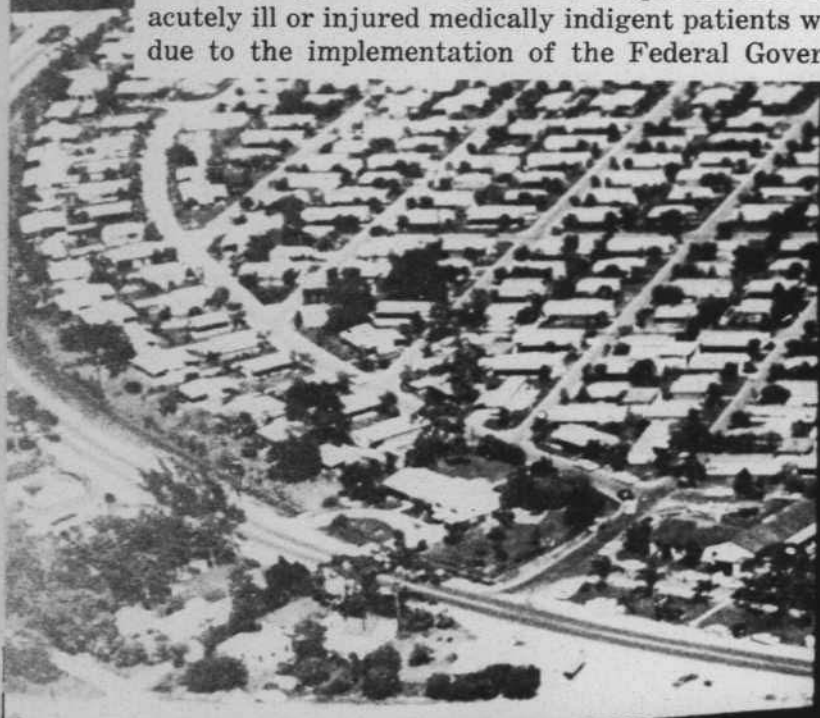


Hospitals and Nursing Homes

The "building" of public health includes the evaluation and licensing of hospitals and nursing homes, including those that participate in Medicare and Medicaid programs. These programs are important "bricks" in the public health building.

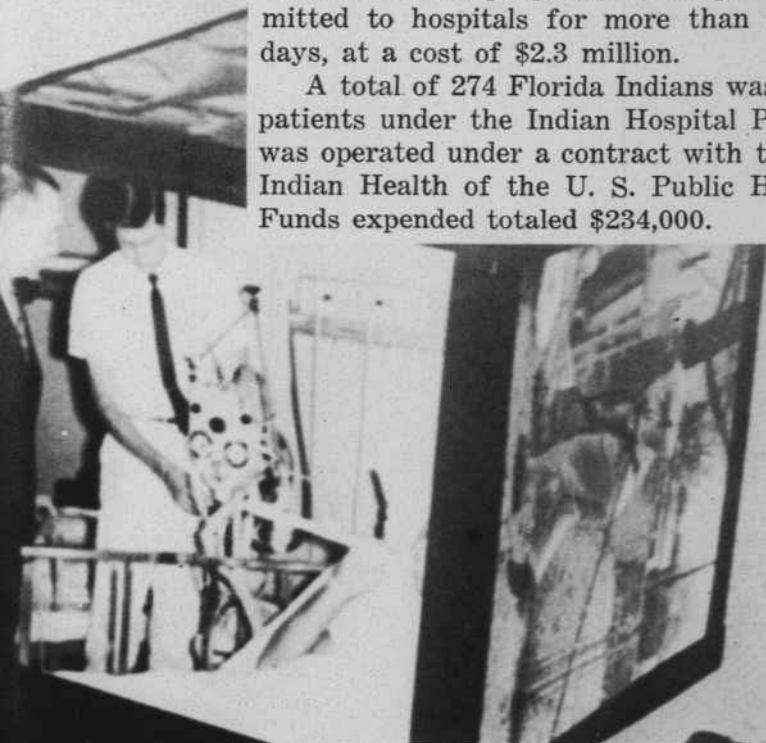
Twelve new hospitals were completed in Florida and added to the registry; one hospital ceased operations; Florida ended the year with 209 licensed hospitals, which had a total of 33,066 beds. Nursing homes, homes for the aged, and special service homes numbered 374; they had 32,561 beds.

The Legislature terminated the Hospital Service for the Indigent Program as of June 30, 1970, and the program was phased out by the Division of Health by the end of September. The termination of the program that provided hospitalization for acutely ill or injured medically indigent patients was due to the implementation of the Federal Govern-



ment's Medicaid Program. During the last six months of the program, 5,165 patients were admitted to hospitals for more than 49,800 patient days, at a cost of \$2.3 million.

A total of 274 Florida Indians was helped as inpatients under the Indian Hospital Program which was operated under a contract with the Division of Indian Health of the U. S. Public Health Service. Funds expended totaled \$234,000.

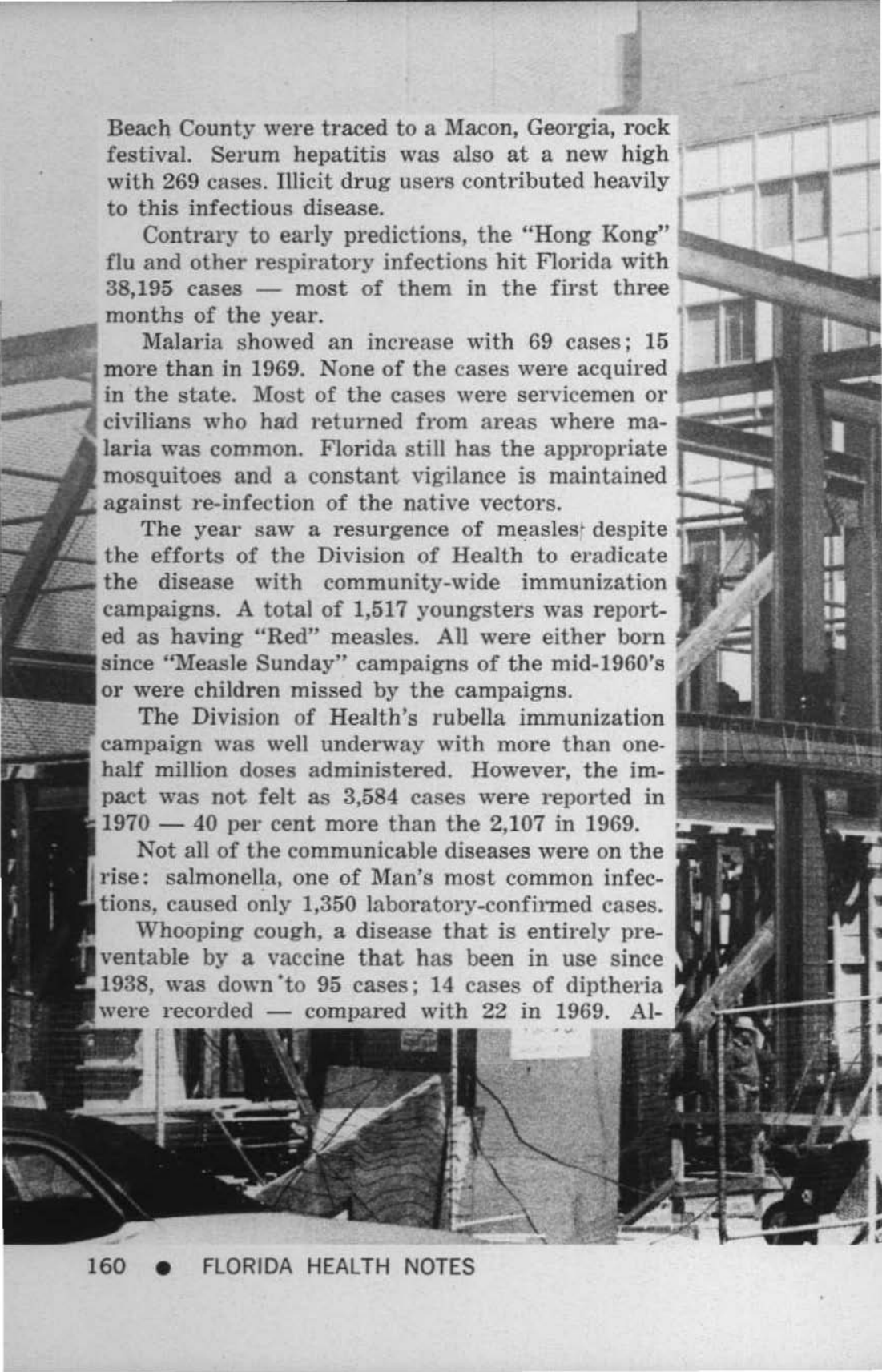


Communicable Diseases

The foundation on which the Division of Health was built was the control of communicable diseases. This control continues as an important "brick" in the "building" of public health but an improved environment, vaccines, and better health practices have cut down the incidence of disease.

Nevertheless, many of the communicable diseases were reported in increasing numbers in 1970: viral meningitis — 500 cases, and frank encephalitis, 176 cases. There were two cases of arbovirus infections — both Eastern Equine Encephalitis — a child in Walton County, and an adult in Alachua County.

Infectious hepatitis was on an upward swing with a record 1,860 cases. Seventy-nine in Palm



Beach County were traced to a Macon, Georgia, rock festival. Serum hepatitis was also at a new high with 269 cases. Illicit drug users contributed heavily to this infectious disease.

Contrary to early predictions, the "Hong Kong" flu and other respiratory infections hit Florida with 38,195 cases — most of them in the first three months of the year.

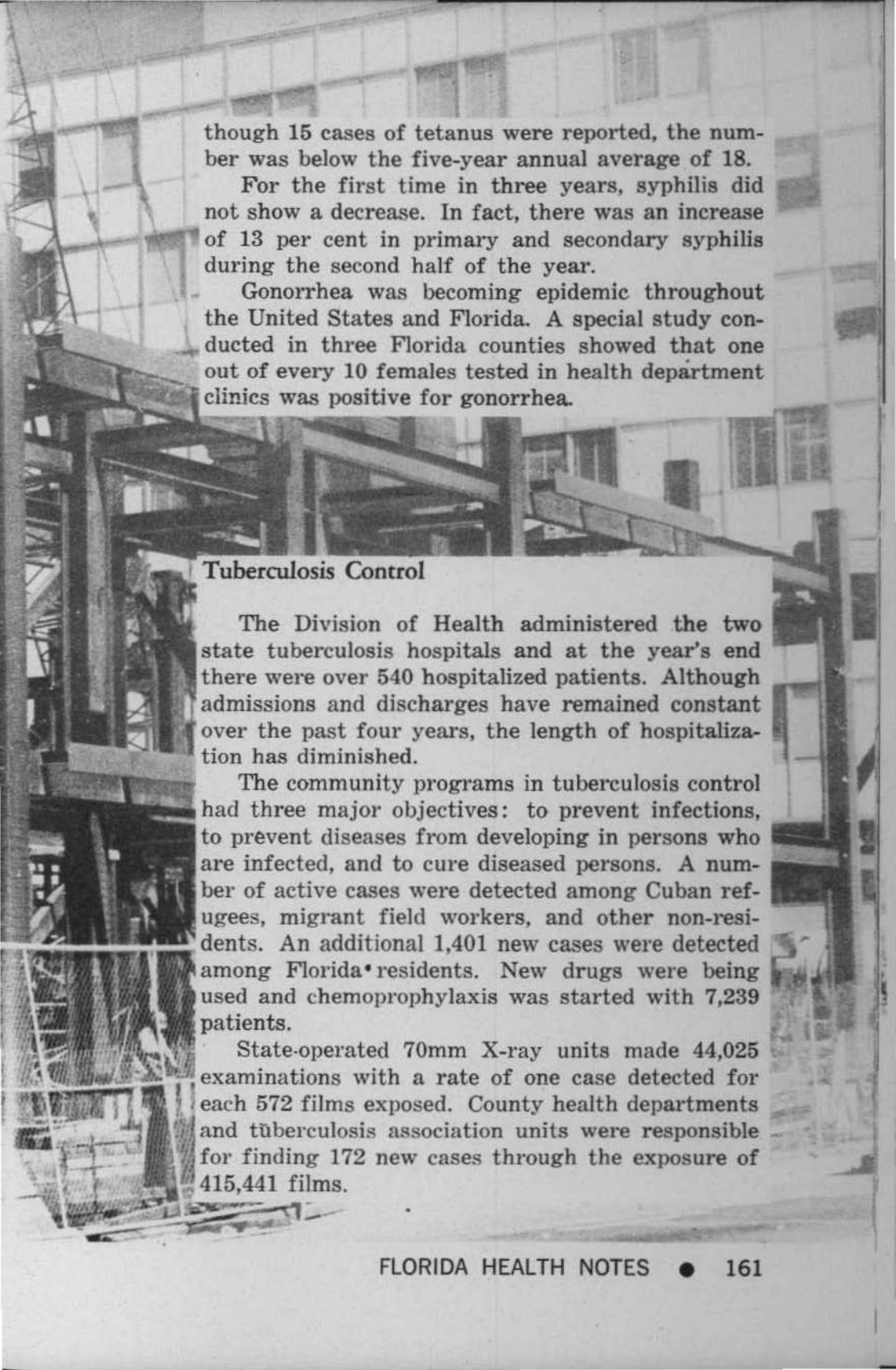
Malaria showed an increase with 69 cases; 15 more than in 1969. None of the cases were acquired in the state. Most of the cases were servicemen or civilians who had returned from areas where malaria was common. Florida still has the appropriate mosquitoes and a constant vigilance is maintained against re-infection of the native vectors.

The year saw a resurgence of measles despite the efforts of the Division of Health to eradicate the disease with community-wide immunization campaigns. A total of 1,517 youngsters was reported as having "Red" measles. All were either born since "Measle Sunday" campaigns of the mid-1960's or were children missed by the campaigns.

The Division of Health's rubella immunization campaign was well underway with more than one-half million doses administered. However, the impact was not felt as 3,584 cases were reported in 1970 — 40 per cent more than the 2,107 in 1969.

Not all of the communicable diseases were on the rise: salmonella, one of Man's most common infections, caused only 1,350 laboratory-confirmed cases.

Whooping cough, a disease that is entirely preventable by a vaccine that has been in use since 1938, was down to 95 cases; 14 cases of diphtheria were recorded — compared with 22 in 1969. Al-



though 15 cases of tetanus were reported, the number was below the five-year annual average of 18.

For the first time in three years, syphilis did not show a decrease. In fact, there was an increase of 13 per cent in primary and secondary syphilis during the second half of the year.

Gonorrhea was becoming epidemic throughout the United States and Florida. A special study conducted in three Florida counties showed that one out of every 10 females tested in health department clinics was positive for gonorrhea.

Tuberculosis Control

The Division of Health administered the two state tuberculosis hospitals and at the year's end there were over 540 hospitalized patients. Although admissions and discharges have remained constant over the past four years, the length of hospitalization has diminished.

The community programs in tuberculosis control had three major objectives: to prevent infections, to prevent diseases from developing in persons who are infected, and to cure diseased persons. A number of active cases were detected among Cuban refugees, migrant field workers, and other non-residents. An additional 1,401 new cases were detected among Florida residents. New drugs were being used and chemoprophylaxis was started with 7,239 patients.

State-operated 70mm X-ray units made 44,025 examinations with a rate of one case detected for each 572 films exposed. County health departments and tuberculosis association units were responsible for finding 172 new cases through the exposure of 415,441 films.

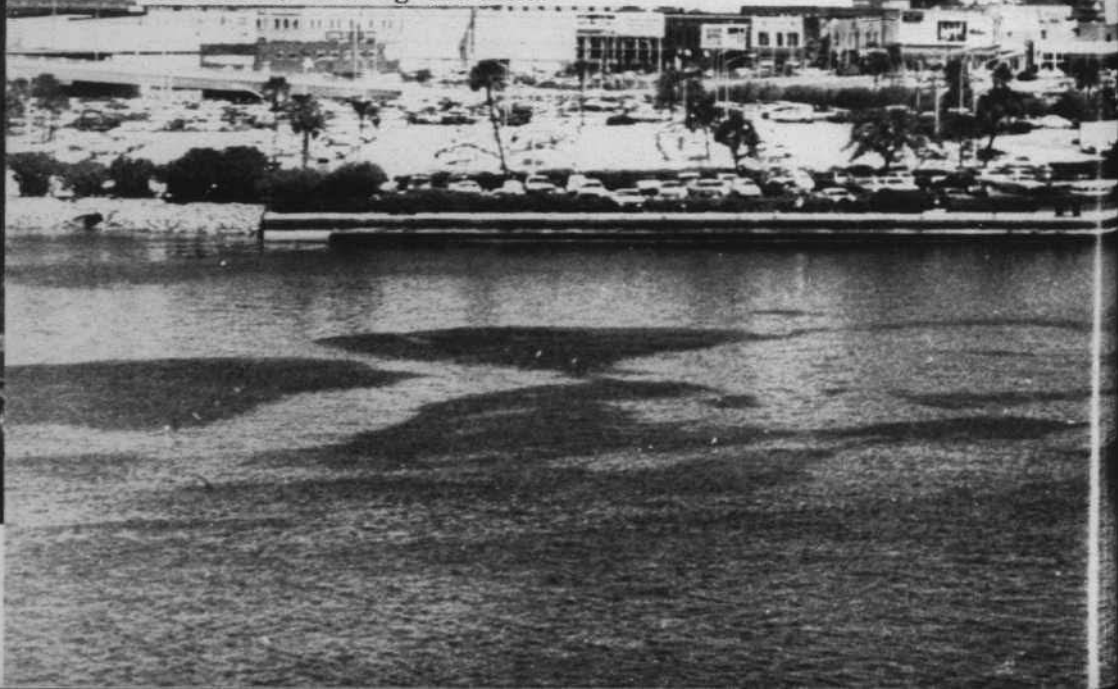
Mosquitoes and Encephalitis

Mosquito control has been an important part of the Florida public health "building" since the beginning of the old State Board of Health.

An alert was sounded early in 1970 for a possible outbreak of St. Louis Encephalitis after the virus was found circulating in Central Florida in late 1969. Various bureaus and sections of the Division of Health (Bureau of Preventable Diseases, Bureau of Entomology, Epidemiological Research Center, and the Veterinary Public Health Section) maintained a surveillance that would have detected the first outbreak of the disease. However, an extended cold winter and dry spring may have prevented the production of the mosquito vector, *Culex nigripalpus*, and the outbreak did not materialize.

There was less annoyance from mosquitoes and dog flies in 1970. Arthropod control programs in 55 of the counties budgeted \$9.2 million for mosquito control; the Florida Legislature added another \$2.4 million for a total of \$11.7 million.

A total of 868 pest control businesses was licensed; identification cards were issued to 6,133 individuals working the field.



Laboratory Support

The Division of Health laboratories provided laboratory support for service, regulatory and research programs of county health departments and the bureaus and sections of the Division of Health. Diagnostic and reference services were also available to physicians, hospitals, independent laboratories, medical examiners and law enforcement agencies.

Over three million examinations were performed. Substantial increases were noted in syphilis serology, cultures for diphtheria and associated infections, gonorrhea smears and cultures, drinking and pollution water testing; forensic, clinical and radiological chemistry, and rubella and PKU screening.

PKU Guthrie tests performed in Jacksonville and Miami laboratories totaled 73,150 tests; 11,441 blood alcohol tests were performed — a 25 per cent increase over the previous year; and of 792,770 blood specimens received for syphilis serology — 3.7 per cent, or 29,450, were reactive in VDRL slide tests.

A special coronary heart disease screening program of the Division of Health required 51,090 assays for hemoglobin, glucose, uric acid, urea nitrogen, cholesterol, and triglycerides.

Pesticide studies required over 183,000 examinations on 7,551 specimens.





The Division of Health was responsible for registering 535 independent, hospital, blood bank, plasmaphoresis and public health laboratories. Licenses were issued to 5,207 laboratory directors, supervisors, technologists and technicians.

Environmental Health

A cornerstone in public health is the protection of the environment from contamination. To the Division of Health, this means protecting the environment from domestic sewage, keeping food and water free of contamination, protecting the public from hazardous substances.

Measures to provide qualified operators of waste water and water treatment plants were furthered during 1970 when certification of operators became mandatory. This called for a stepped-up program of training operators.

A plan for the control of solid waste (a sophisticated name for

garbage and rubbish) was written by the Division of Health.

The program for the control of the growing, harvesting, processing and marketing of shellfish, and the picking and packing of crabmeat, was evaluated by the U. S. Public Health Service and given a satisfactory rating.

A total of 1,337 waste water projects was approved during 1970. The construction cost amounted to over \$103 million, an increase of \$18 million over the previous year.

Plans and specifications for 938 water treatment plants were approved by the sanitary engineers. Approvals of 806 public swimming pools were given. These had a construction cost of \$9.7 million.

A program to improve the food service program was inaugurated in 1970; 33 sanitarians were given intensive training and received certificates as food hygiene program coordinators. County health department sanitarians made 176,603 visits to 23,244 eating and drinking



places, 8,199 grocery and meat markets, 1,295 food processing plants, and some 2,000 abattoirs, shellfish and crustacea plants, and other food establishments.

Permitted trailer parks now total 3,476. These provided space for 166,250 trailers or mobile homes. Over 64 per cent of these spaces were served by municipal or central sewerage and water systems.

Migrant labor camps received particular attention in 1970 and improvements in housing facilities were required of camp owners. Many camps failed to meet minimum requirements and therefore could not be permitted. The permitted number of migrant camps dropped from 311 to 267 in 1970.

Recent legislation gave teeth to the program which protected the consumer from hazardous products. Children's toys were given particular attention and the county health department sanitarians checked sales outlets and removed items that were deemed hazardous by the

Federal Food and Drug Administration and the Division of Health.

The health agency was responsible for enforcing the bedding inspection law that required meaningful and truthful labeling of all items of bedding. The field staff made 6,956 inspections during 1970 and found 2,457 pieces of bedding in violation of the law.

Radiological surveillance continued at the sites where nuclear reactor power plants were under construction or in the planning stages. Contracts with the Florida Power and Light Company and the Florida Power Corporation helped provide funds to carry out environmental surveillance in areas around Turkey Point, Crystal River and Hutchinson Island.

The shipping of radioactive materials and nuclear fuels called for a stepped-up system of emergency planning. The Division of Health had an emergency vehicle and team ready to take care of most radiological accidents.

Florida — A Growing State

Florida's population, as of July 1, 1970, was 6,835,700, and the Sunshine State ranked the ninth most populous state in the Union. Since 1960, the population increase was 37 per cent, barely half of the 78 per cent increase of the previous decade.

A total of 15,303 persons was added to the population each month. The natural increase (difference between death and births) accounted for 4,105 persons; the remaining increase was from the 11,200 individuals who moved into Florida from other states.

The provisional birth statistics showed 114,440 babies delivered to Florida residents in 1970, a gain of six per cent over the 1969 natality data. The birth rate declined from 16.9 to 16.7 per 1,000 population due to the higher population figures provided by the 1970 census. However, when the estimates are revised, the birth rate may show an increase due primarily to the large number of babies born during the post-World War II "Baby Boom" who are now grown and having children of their own.

The provisional data for 1970 showed 74,824 deaths — a record for the 24th consecutive year. Much of the death rate rise is due to the state's attraction as a retirement center.

Diseases of the heart, cancer and stroke held the first three positions as the causes of death. These are predominately diseases of the elderly and medical science has been relatively less successful in combating them as compared with infectious diseases of the young.


Accidental death has ranked as the fourth leading cause of death for more than two decades. The remaining six of the leading causes of death are influenza and pneumonia; bronchitis, emphysema and asthma; diseases of early infancy; diabetes mellitus; cirrhosis of the liver, and arteriosclerosis. Suicides rank 11th.

Provisional statistics showed 2,455 infant deaths among residents with a rate of 21.5 per 1,000 live births.

The record number of marriages, 69,968, exceeded the total for 1969 by 4,132 — a rise of six per cent. There were 37,542 divorces (including annulments) for a rate of 5.5 per 1,000 population. The ratio of marriages to divorces has been approximately 2.0 for most of the past decade.

Financing and Staffing

The cost of maintaining the public health structure in Florida in 1970 was \$47.2 million. The money came from state ap-



appropriations, local finances, federal grants and other grants and donations. Special grants were given for maternity and infant care, child and youth health services, tuberculosis control, migrant health and family planning projects, health services for Cuban refugees and pesticide studies.

There were 3,422 employees in the state-county health department system as of the end of 1970. Over 70 per cent of these work at the grass roots level of public health — the county health departments.


Emergency Medical Services — Health Mobilization

The Division of Health is responsible for the promotion of efficient emergency medical services in the communities. This means proper “medical care” at the scene of the accident, during transportation to the hospital, and upon admission to the hospital. Approximately 350,000 persons are transported in ambulances each year in Florida.

There are four major areas with which the Division of Health is concerned: the vehicles and equipment, the training of attendants, communications between the ambulance and the emergency departments

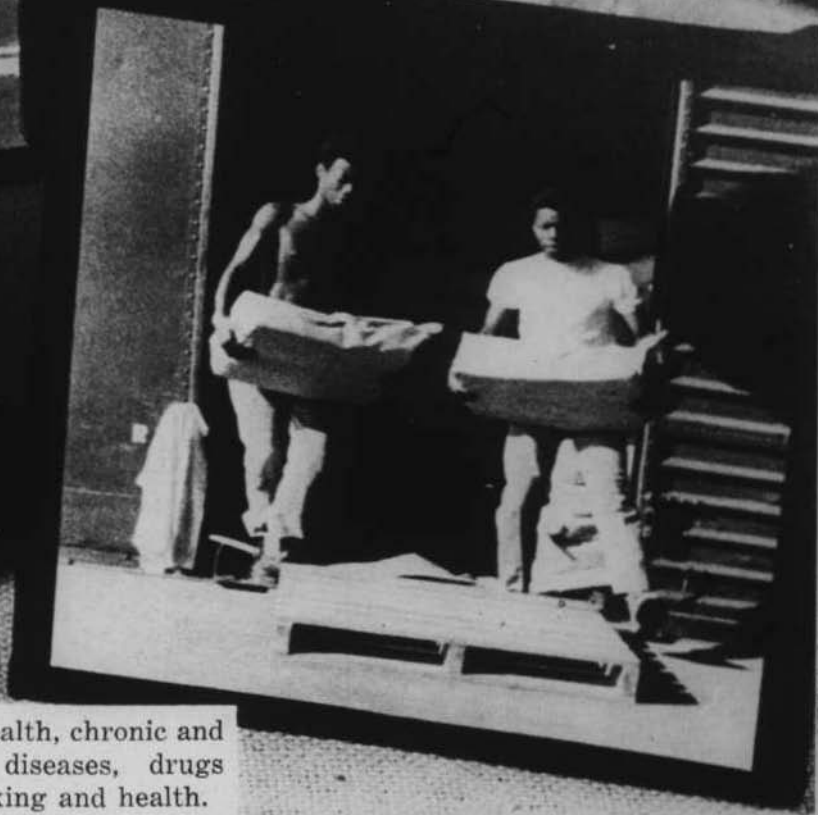
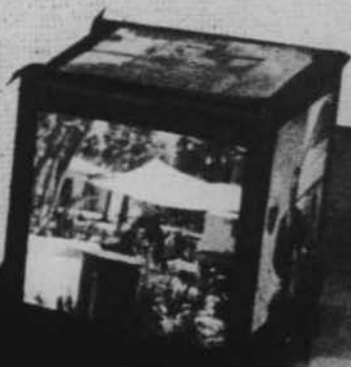
of the hospitals, and the need for an informed public.

The Division of Health is also responsible for health mobilization at times of natural or man-made disasters. It instituted community disaster drills. Such drills were held in eight counties and one municipality during the past year. The Medical Self-Help Training course was taken by 43,818 individuals during the year.



Health Education and Training

The Division of Health maintained a medical and reference library of some 25,000 books and journals, and an audio-visual library of some 1,800 films and visual aids. The visual aids were used approximately 44,500 times and seen by an estimated two million persons. Nearly a half-million pamphlets were distributed. Most requested subjects were on nutrition, mater-



nal and child health, chronic and communicable diseases, drugs abuse and smoking and health.

Training of the professional health worker to deliver better services to the people of Florida, and the education of the public toward better health is major

work of the Division of Health. Many areas, such as maternal and child health, public health nursing, sanitation, venereal disease control, and laboratories, carry on continual training of professional workers. Education of the public is particularly vital in the areas of venereal disease control, smoking and health, diabetes control and nutrition. 7

The Public Health "Building" 8

A building is made of foundations, cornerstones and a variety of materials. Like a building, the public health system has certain programs that are the foundations of the structure — child and maternal health, environmental health, communicable disease control. Other programs are cornerstones and still other programs are the "bricks" that form the superstructure.

It is necessary that Florida has a good public health structure which will protect its citizens and visitors. We have told you of some of the building carried on by the Division of Health in 1970.

Public health is not "sticks and snails" or "sugar and spice" but it is people caring about their neighbors. It is service, money, buildings, books, films, clinics. This is Florida's public health.

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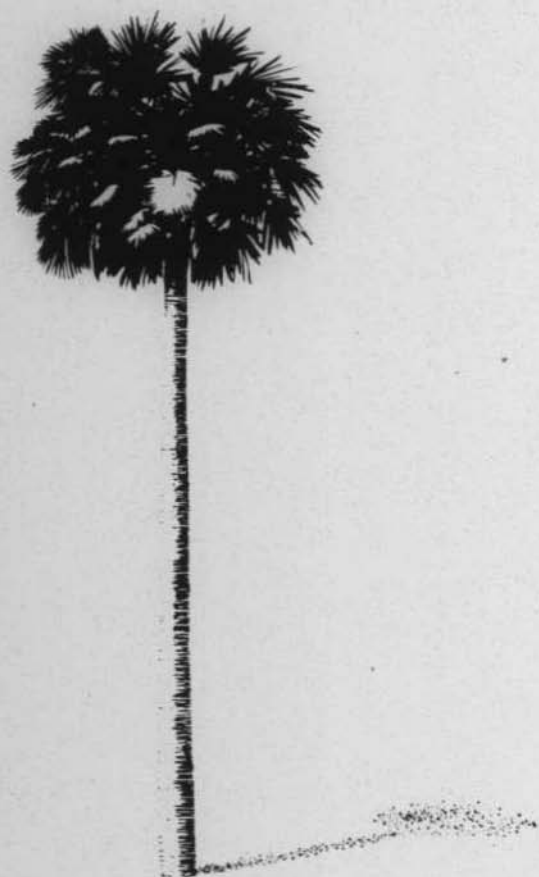
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FLORIDA HEALTH NOTES



Hospitals, Nursing Homes:
Quality Patient Care

JME 63—NO. 7

1971

FLORIDA STATE LIBRARY



THE TEAM APPROACH (cover photo) — A health care facility administrator greets a team of consultants from the Division of Health and county health department. During the visit, the team will make evaluations for Medicare, Medicaid and the licensure programs.

CONFERENCES — These are held with the administrator before and after the evaluation of the health care facility.

Hospitals,

Nursing Homes:

Quality Patient Care

Florida is the No. 1 Sanctuary in the United States for Senior Citizens. The pleasant climate that draws millions of tourists, also lures thousands of elderly people to spend their retirement years in the sunshine. The 1970 Census showed that Florida has a greater proportion of persons over 65 than any other state, by-passing several midwestern states who had this distinction in 1960.

Nearly 15 per cent of Florida's population is over 65 years of age. This is approaching one million permanent citizens. And the number is growing.

Many of these elderly persons have chronic diseases and health problems that require hospitalization, nursing home care, and long-term convalescence.

This is not a story strictly of elderly, but a story for everyone. Hospitals are community-oriented institutions. Nursing homes are becoming more than just a place to put the elderly when families can no longer take care of them; they are becoming convalescence centers where patients receive skilled nursing care and rehabilitation when they do not need the hospital's intensive nursing and medical supervision.

But in order to assure patients that they will receive quality medical and nursing care, that they will be protected from fire and disaster, and that they will be comfortable and recover as quickly as possible, these health facilities need to conform to recognized standards for the protection of the people.

At the present time, Florida has 209 hospitals with 33,066 beds. There are 374 nursing homes, homes for the aged, and homes for special services with over 34,600 beds. All of these are licensed by the Division of Health.

This issue of *Florida Health Notes* will tell you about the health agency's programs for evaluating these health care facilities and

granting licenses. The programs include two federal health insurance programs — Medicare and Medicaid (Titles XVIII and XIX of the Social Security Act) in which the Division of Health recommends health care facilities as Providers of Service.

The Beginning of Hospital Licensure

The Florida Legislature, in 1947, passed a law that provided for hospital inspection, licensing and consultative services by the State Board of Health (now Division of Health) and stated that the word "hospital" would apply only to those institutions receiving federal aid under the Hill-Burton Hospital Construction Act. (The Act is now known as Hill-Harris.) By 1950, 18 hospitals, with some 2,000 beds, had been built or were under construction under the Hill-Burton Act.

As time progressed, a broader interpretation of the policies made all hospitals that received surplus property, surplus commodities, or payments from the State Welfare Department (now Division of Family Services of the Department of Health and Rehabilitative Services) subject to licensure.

The Florida Legislature, in 1955, passed a program called "Hospital Service for the Indigent" which provided state-county money to pay for hospitalization for persons who were medically indigent. In a special session in 1956, the Legislature adopted a resolution that authorized the State Welfare Department to utilize state funds and federal matching money to set up the "Public Assistance Medical Service Fund." The State Board of Health and county health departments were made responsible for the medical administration of the program which provided hospital care for

FLORIDA HEALTH NOTES

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JULY, 1971



SINCE 1947 — Hospital licensure began in Florida in 1947 with facilities that were receiving federal money for construction. Today, all hospitals must meet standards set by the Division of Health.

public assistance recipients. At the time, about one-third of the medically indigent citizens of Florida were receiving public assistance.

The 1947 Hospital Licensure Law was expanded by the Legislature in 1957 to include hospitals other than those receiving federal aid or those built and equipped under the Hill-Burton Act. The major provisions of the law set minimum standards for the care and treatment of individuals in hospitals, and the "construction, maintenance, and operation of hospitals, which in the light of advancing knowledge, will promote safe and adequate treatment of individuals in hospitals."

The Beginning of Nursing Home Licensure

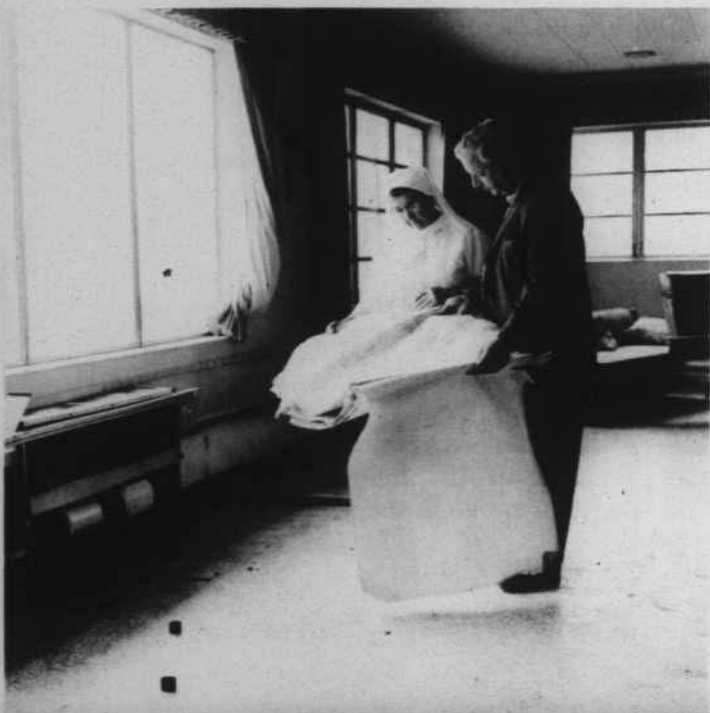
Nursing homes are the outgrowth of a complex social, economical and medical changes in the United States. The development of rapid transportation following World War I, made the United States a mobile nation. Persons moved from place to place for work or pleasure. Because of the mild climate, many persons moved to Florida to make their home in the sunshine.

A mobile and shifting population tends to separate parents and children who normally would take care of their parents when they reach old age. And today's homes are smaller. Many times children have youngsters of their own and no room for their elderly.

People who were separated from their families, frequently lived in boarding houses, old soldiers' homes, fraternal clubs and church retirement centers. They were without family or friends, unable to care for themselves, and needed to be cared for by society.

The passage of the Social Security Act in 1935 hastened the development of nursing homes. When people started receiving these Social Security monthly payments, they were able to pay someone to take care of them and fill their needs. Other people who had space in their homes and needed additional income, rented rooms to many recipients of Social Security checks. The more tenants a landlord had, the higher his income, and sometimes boarding houses became overcrowded.

Then, as now, people had a habit of growing old. As they became old, they became ill with heart disease, diabetes, stroke and other infirmities of the elderly. The boarding houses became "nursing homes" for the tenants. But boarding houses, which once housed the residents, were not suitable for nursing homes. The corridors were too narrow, the stairs too steep, the sanitary facilities inadequate, the feeding capabilities limited and there was little safety protection.



CHANGES — A Division of Health consultant goes over the plans for a nursing home with the administrator. Any change in the building or operation of the facility needs the approval of the Division of Health.

Frequently, there was adverse publicity, especially when a home was found to be overcrowded with patients in beds in the halls. Or when fire raced through a building filled with bed-ridden, elderly patients. People died! The public image of nursing homes was not helped by poorly equipped or understaffed facilities. Florida tried to do something about the nursing home situation. The State Board of Health (which is charged with protection of the public's health), the State Department of Welfare, and other governmental agencies, civic clubs and private organizations tried to obtain regulations to protect the occupants of nursing homes. A bill was placed before the Legislature in 1951 but failed to pass.

In 1953, the State Board of Health and other organizations and agencies tried again but there were a couple of incidents that increased interest in the bill. An early morning fire in a Largo, Florida, nursing home on March 29, 1953, just days before the Legislature was to meet, took the lives of 32 elderly patients and an attendant. There were rumors of an order by the federal government that federal funds, which were used to supplement state welfare funds, could be no longer used to support welfare patients who were in nursing homes not licensed by an appropriate state agency.

Florida's first nursing home law was passed without delay. the major implications of the law dealt with licensing of nursing homes and set standards for patients' safety, nursing care and environmental health.

A general survey of nursing homes was made by the State Board of Health in 1953 and 1954. Responsibility for enforcement of the law was given to the county health departments and members of the State Board of Health's Field Advisory Staff acted as nursing and sanitation consultants to the county health departments.

Since 1953, the rules and regulations covering nursing homes have been revised and up-dated. Many of the health care facilities that were former private residences were, or are being, phased out by stricter regulations.

Licensure and the People of Florida

What does the licensing of hospitals and nursing homes mean to the citizens of Florida? Florida Statute 395 says that the purpose of

hospital licensing is "to provide for the development, establishment and enforcement of standards: (1) for the care and treatment of individuals in hospitals, and (2) for the construction, maintenance and operation of hospitals, which, in the light of advancing knowledge, will promote safe and adequate treatment of such individuals in hospitals."

The Nursing Home Law (Florida Statute 400) says the purpose is "to provide for the development, establishment, and enforcement of basic standards for the health, care and treatment of persons in nursing homes and related health care facilities, and for the construction, maintenance and operation of such institutions which will insure safe and adequate care, treatment, and health of persons in such facilities."

The Division of Health of the Department of Health and Rehabilitative Services is responsible for the carrying out of these laws and for conducting evaluations of the health care facilities to make sure they meet "minimum standards" for the patients' medical care, safety and comfort.

In the beginning, the Division of Health relied heavily upon the county health departments to carry out the regulatory responsibility for nursing homes and related health care facilities. With the adoption of Medicare and Medicaid Programs in Florida, the administration of the programs and submission of recommendations for participation in the federally-subsidized health insurance programs have been assumed largely by the state health agency.

In this area of concern, the Division of Health has responsibility for

- * licensure — a state statutory requirement and pre-requisite for participation in any federally-sponsored program;
- * licensure surveys at least annually with follow-up visits during the year;
- * recommendations for certification in federal and state programs;

- * final approval of all plans for construction of new facilities, for expansion or renovation; and

- * transmission of reports of consultants and decisions on licensing to county health department.

The county health departments are responsible for:

- * providing day-to-day surveillance of all facilities within the county through periodic visits as often as deemed necessary to assure proper compliance with state rules and regulations;

- * investigating complaints received locally or from the Division of Health (with a report sent to the Division of Health);

- * making recommendations to the Division of Health concerning construction plans for nursing homes and related care facilities, including sites, water and sewerage facilities, and,

- * distributing of license applications to facilities and providing assistance to the facilities in properly preparing the data required — together with a definite recommendation to the Division of Health as to licensure.



PEOPLE-ORIENTED —
The Division of Health's licensure programs are for the comfort, safety and care of the people. A public health nurse talks to a patient to find out how she is being cared for and if she has any problems.

Florida's Licensure Program — Hospitals

A hospital is an integral part of a community. Therefore, when such a health care facility is planned, the community is involved — in the organizing and planning of services that will help the citizens of the community.

The licensure of a hospital by the Division of Health begins in the planning of the facility. All such institutions, for the purpose of the rules and regulations are divided into two classes — general and special hospitals.

A special hospital may be a maternity, tuberculosis, psychiatric or children's facility. These must comply with appropriate rules, regulations and minimum standards that pertain to the delivery of this type of service.

To qualify as a general hospital, an institution must provide comprehensive medical and surgical care, and have:

- * clinical laboratory facilities to meet the needs of the hospital;
- * diagnostic radiological services available within the facilities;
- * separate surgical unit with separate work space, sterilization and storage facilities to meet the needs;
- * isolation facilities to adequately handle contagious diseases; and
- * maternity suite (if maternity patients are admitted) with separate facilities, including rooms for patients, labor and delivery rooms, and nurseries for newborn infants.

The Division of Health's staff makes an appraisal of the plans for the physical plant of the hospital with special consideration given to fire protection, accommodations for patients, heating, lighting, ventilation, and air conditioning, elevators and dumbwaiters, essential services to meet the needs of the staff and patients, and special departments. Provisions are also noted for the prevention of cross-infection of disease, for the governing authority of the hospital, and for adequate medical and nursing staffs.



PLANS — The licensing procedure of a health care facility begins while the facility is still in the planning stage.

While all licensed hospitals must conform to basic minimum standards, the Division of Health has no jurisdiction in the area of hospital-patient arrangements regarding payments or non-payments of services rendered to the patients.

When a hospital applies for licensure, the health care facility must send to the Division of Health a list of the members of the medical and nursing staffs, copies of the medical staff's by-laws and regulations, the nursing procedures manual, and disaster and fire evacuation plans. Also included are the roster and by-laws of the governing body of the hospital.

During the licensure of an institution seeking a hospital license, two surveys are made by the Division of Health to determine if all of the necessary requirements are met.

The first survey is made of the physical facilities to determine that the building, or buildings, conform to the construction requirements. Prior to this survey, the hospital must obtain county health department approval of the dietary facilities, as well as other county requirements, such as valid certificates of occupancy pertaining to fire, building, zoning, plumbing, electrical and health codes. In addition, water supply, waste supply, waste disposal and incinerator (if included) must be approved by the Division of Health's sanitary engineers or by an approved municipal or franchised system. When these requirements are met and a survey made, the Division of Health issues a provisional license.

A second survey is made when the hospital is open and accepting patients. This is to ascertain that the hospital meets operational requirements of the Division of Health. If the survey results are satisfactory, a full license is issued.

Florida's Licensure Program — Nursing Homes

Nursing homes, including homes for the aged and homes for special services, are institutions necessary to meet the needs of the people. For this general discussion, all of these are lumped into the term "nursing homes." While Florida has over 350 of these health care facilities, there is a general lag behind the demand for long-term nursing or custodial care.

A nursing home may be owned by a corporation or individual who sets the policies and hires an administrator to provide the service. The nursing care is the center of activities. Few nursing homes have organized medical staffs; the administrator may guide the nursing policies, but the director of nurses is the one who deals with the individual physicians who come in to see their patients.

The Division of Health and County Health departments must keep abreast of the ever-changing aspects of nursing home requirements and provide solutions to the problems. As previously

stated, licensing of nursing homes goes back to 1953 and there has been a constant effort to improve quality of care and facilities. In many instances, this has involved the spending of large sums of money to improve facilities and have resulted in the closing of a substantial number of marginal nursing homes.

A nursing home is defined as a health care facility that gives continuous nursing care to the ill, physically infirmed, and those of advanced age.

A home for the aged provides custodial and personal care for people who are not confined to their beds and who do not need observations of their diets and sleeping habits. They merely need supervision of their general health, safety and well-being.

A home for special services is one that cares for patients with special problems — such as mental retardation, drug addiction, pregnancy or a physical handicap.

Exempted from Florida's nursing home licensure laws are:

- * facilities operated by an agency of the Federal Government;
- * institutions that offer their services primarily for medical treatment or surgery and are licensed by the state; or
- * any facility or institution operated only for persons who rely exclusively on treatment by prayer or spiritual means. This type is exempt only as far as medical examinations or treatment are concerned.

As with a hospital, the licensing of a nursing home begins while it is in the planning stage. Consultants of the Division of Health review architectural plans for the nursing home, make recommendations as to ways of improving design and safety features. Visits are made to the construction sites by county health department sanitarians and state consultants. Sometimes errors show up in construction that were not evident in the planning stage. The plans, for example, may fail to call for a fire wall at proper locations, but if such errors are found before the building is completed, the owners would be saved many thousands of dollars.

The nursing home must meet all of the requirements of the local building codes and health regulations of the county health department. Surveys are made during construction and following completion of the structure, after the nursing home is in operation, re-surveys are made annually, or as needed, to ascertain its compliance with the operational procedures required by the Florida Statutes and the *Florida Administrative Code*.

The Medicare Program

The State Board of Health was designated in 1965 as the Florida state agency to assist the Social Security Administration in implementing Title XVIII of the Health Insurance for the Aged Act (Medicare). This was to include surveys of hospitals and nursing homes, home health agencies and independent laboratories and make recommendations for their participation in the Medicare Program. (The Program provides medical care and laboratory services for persons over 65 in health care facilities and at home.)

The program also calls for consultation services to hospitals, extended care facilities and home health agencies in order that they may comply with the conditions of participation.

EVALUATING A NEW HOSPITAL — A Division of Health consultant discusses with representatives of the facility and the contractor the operation of an autoclave in a sterilization room of a new hospital.



Hospitals that are accredited by the Joint Commission on Accreditation of Hospitals or the American Osteopathic Association automatically meet the requirements of the federal program with the exception that they must show that they meet the requirements of "utilization review." This means that a committee of physicians in the hospital has been appointed to review the quality of medical care and the effective use of the hospital's services. Such a review would include an evaluation of admission, duration of stay, and take into account alternative use and availability of out-of-hospital services and facilities. Periodic evaluations are made of these hospitals to insure that utilization review is being performed in compliance with statutory requirements.

At the present time, 136 participating hospitals in Florida are accredited by the Joint Commission on Accreditation of Hospitals and nine by the American Osteopathic Association.

The qualifications of hospitals, which are not accredited, are determined by the Division of Health.

Under the Medicare Program, an extended care facility must have an agreement with one or more hospitals to accept in-patients who are in need of skilled, post-hospital nursing care or rehabilitative services for injuries, disabilities or illnesses. The facility must also have a physician, registered professional nurse, or a medical staff responsible for the carrying out of the policies of the institution. It must maintain clinical records on all patients, provide 24-hour nursing service, and meet all of the requirements of the Florida nursing home licensure law and Medicare Conditions of Participation for Extended Care Facilities.

In addition to hospitals and extended care facilities, the Division of Health also surveys

- * independent laboratories, which provide diagnostic services to Medicare beneficiaries.

- * home health agencies, which provide home nursing care and rehabilitative services, such as physical or occupational therapy, to the sick and elderly. (Many of the public health nursing programs of the county health departments and Visiting Nurse Associations of

Florida are providers of home nursing care as home health agencies.)

- * rehabilitation clinics, which provide outpatient physical therapy services.

- * portable X-ray services, which provide diagnostic X-ray services in the place used as the patient's home.

The Medicaid Program

The Division of Health has a contract with the Division of Family Services to survey, evaluate and classify skilled nursing homes and intermediate care facilities, and to make recommendations for participation in the Medicaid Program. This Program provides nursing care to recipients of public assistance or indigent persons and involves care in skilled nursing homes and intermediate care facilities.

In order to qualify for the program, nursing homes must meet fully the licensure requirements of the state and the requirements of the Hospital and Nursing Home Chapter of the Life Safety Code (National Fire Protection Association-110) for institutional facilities.

The surveys made for the Medicare and Medicaid Programs are frequently made at the same time as the licensure evaluations in order to save duplication of visits by the Division of Health consultants and the county health department staff members.

The Team Approach

The Division of Health has two-fold purposes in its licensure — whether it is for the state or federal programs. On the one hand, the Division of Health staff members conduct surveys or evaluations of hospitals and nursing homes for licensure compliance and for making recommendations as providers of services under Medicare and Medicaid.

At the same time, staff members act as consultants who show the health care facilities' administrators and owners how they can

WAITING FOR PATIENTS — A new hospital's pediatric department is evaluated by the Division of Health consultant before the building is ready for occupancy. A temporary license may be given at this time. Another evaluation is made 30 to 90 days after the hospital goes into operation.



improve their services to the patients, save money, ultimately reduce the cost of services to the patients.

Heading the team which carries out the surveys is the hospital consultant. Other members of the team are the nursing and nutrition consultants. They may be accompanied by a public health nurse or sanitarian from the county health department. Frequently, the members of the team visit the health care facilities together.

Many county health departments have public health nurses and sanitarians assigned to the duty of nursing home evaluation and are responsible for day-to-day surveillance of environmental sanitation and nursing service in nursing homes. They work closely with the state consultants.

Hospital Consultation

Hospital consultation begins even before the construction of the hospital plant starts. The consultant offers professional advice, steering the sponsor of the proposed facility past many potential pitfalls of unnecessary construction, needless costs, and inadequate

staff. He serves as the reference point in getting the architectural plans approved for construction, visits the hospital's building site during the progressive stages, keeping an eye out to ensure that the plans approved for the facility are being met. He visits the facility when it is finally completed for a last check, and if such visit is satisfactory, the Division of Health issues a provisional license. He then visits the facility some 30 to 90 days later for an operational survey to determine that the administrative and staff requirements are also met. If the answer is in the affirmative, an unrestricted license is issued to the facility.

The hospital consultant also serves as liaison between the Division of Health and facilities relating to questions concerning professional advancement in the art of hospital management, and serves as the bridge between the facility and federal agencies — which have their own set of regulations.

The hospital consultant is responsible for making certification surveys for those hospitals which participate in Medicare and Medicaid Programs, and for compliance with the Civil Rights Program. He advises the facilities as to how compliance can be achieved and how efficiencies of operations are possible.

The consultation services offered may occasionally stem from complaints that are received in the Division of Health from patients, from the relatives of patients, or, on some occasions, from the federal government sponsors of the program. In such cases, the facts must be ascertained and corrective action undertaken by the hospital or other special discipline consultant; lengthy reports are prepared for the official agency who forwarded the complaint for action.

Nursing Home Consultation

As with hospitals, the Division of Health consultants are involved with the nursing home facilities from the planning stage. Should the nursing home wish to expand its facilities, the consultant advises the administrator, owner and builder on the construction of additional rooms, the ancillary rooms, the technical part of the plans. He may advise the nursing home administrator on a variety of matters

relating to the operation, including the placement of the nursing station, the location of exits, the type of carpets (or the use of carpets), and a multitude of items during the planning and construction. He also approves the functional design of the building. This can prevent many headaches, added expense, and assist with the compliance of the laws and regulations.

When a nursing home consistently fails to meet the minimum professional nursing standards, the owner may be persuaded to close the home or convert it to another use. The owner of one nursing home, who had difficulty in hiring a nursing staff, visited the Division of Health ready to object to the closing of his establishment as a nursing home. The Division of Health consultants suggested that the facility be converted into a home for the aged that would not require the nursing staff and 24-hour nursing service. The owner was convinced that he could operate successfully as a home for the aged which would provide custodial services to a different type of clientele.

The Division of Health, through the cooperation of professional organizations and boards of registration, has been able to help nursing homes comply with the Conditions of Participation for Medicare by finding social workers, dietitians and pharmacists, sometime in their own community, who are willing to act as full-time or part-time consultants to the health care facilities.

PATIENTS' RECORDS —

A public health nurse from the county health department, a member of the evaluation team, goes over the patients' records with the chief nurse of the nursing home.



Nursing Consultation

The public health nurse who acts as a consultant to the hospitals and nursing homes is finding the characteristics of patients in nursing homes changing. Hospitals are becoming places where only acutely ill patients are served. Because of the high cost of hospitalization, patients are being transferred to skilled nursing homes for convalescence and terminal illnesses. Also those aged patients who are senile, or those with psychological problems, are often cared for in nursing homes.

The nursing consultant provides consultation as she assists in the surveys. This is especially true in small hospitals which have need for help in keeping up with new practices in nursing care. The same applies to those nursing homes which do not have highly qualified personnel in the field of geriatric nursing. This has become a specialized field of nursing.

Ordinarily, large hospitals do not require the same amount of consultation as smaller hospitals since they have the resources to meet their needs. However, at times, they seek the advice of the nursing consultant on problem areas, such as sterilization procedures, isolation techniques and cross infection problems. Many times hospitals are referred to the U.S. Public Health Service's Center for Continuing Education which has the latest information on communicable disease control and isolation procedures.

In hospitals, the nursing consultant looks into all aspects of the nursing care given the patients: the staff and its qualifications, written procedures and policies on inservice education, the dispensing of drugs — all things in the patients' records. In brief, the nursing consultant is interested in all areas for which the director of nursing is responsible.

In the nursing home, the consultant follows the same pattern. But she looks into the continuity of patient care, the condition of the patients, rehabilitation, and activities of the patients. She asks questions of the patients to find out how they are being cared for. One area of special concern is restorative nursing, which includes keeping patients active and interested in the environment.

The nursing consultant is not primarily involved with homes for the aged. The residents are ambulatory and require very little medical care. If any one of the residents become ill, he must be placed in a health care facility licensed to provide the appropriate level of health care.

Nutrition Consultation

Food is an important part of people's lives and every effort is made in health care facilities to see that patients and residents are given nutritious meals.

Hospitals and nursing homes, in qualifying for participation in the federal health insurance programs, must have consulting dietitians on their staffs to make sure the meals are nutritious. The institutional nutrition consultants from the Division of Health work with these dietitians, administrators and food supervisors in providing patients with nutritionally-adequate meals. They evaluate the total food service facilities for food preparation, diets, menus and written orders by physicians to see that patients receive adequate meals.

The consultants also work with the county health department and regional nutritionists to help provide training for dietitians and food service workers; and in cooperation with dietetic associations, help plan courses at junior and community colleges, adult education classes, vocational schools, and through correspondence courses.

The nutrition consultants may be called in on the planning of the food service areas when a facility is to be constructed. They make surveys when complaints are received concerning the food or meals of an institution. When health care facilities ask for consultation, they are routinely furnished assistance.

Recently large hospitals have requested consultation on new food service systems and equipment. One Florida hospital is experimenting with frozen, prepackaged meals that would be heated



NUTRITION CONSULTATION — Institutional nutritionists from the Division of Health evaluate the menus and work areas of the food service department in health care facilities.

in satellite kitchens on each floor and served directly to patients. This fast service uses less labor and may be feasible in large hospitals.

Many nursing homes are beginning to find that five meals for the elderly are more convenient and better for the patients than three meals a day. The new system includes a continental breakfast, a brunch in mid-morning, a light lunch at 1 p.m., a dinner-type meal at 4 p.m., and another light meal at 8:30 p.m. before the patient retires for the night.

The Environmental Survey

Florida Statutes call for the construction and maintenance of a good, healthy environment in hospitals and nursing homes. The environmental evaluations of hospitals and nursing homes are always made by the state consultants at the time for licensure.

The evaluation includes the type of construction; fire resistance of the walls; location of stairs and ramps; cleanable construction of floors, walls and ceilings; and the width of stairs and ramps.

Fire safety measures are checked for adequate fire extinguishers, sprinkling system, exit doors, wiring, obstruction in halls and exits, and whether heaters are of the approved type.

The plumbing and sewage disposal systems are checked; toilets, baths and lavatories are approved; handrails for bathtubs and showers are noted. Also inspected are the lighting and ventilation, dishwashing facilities, garbage disposal, and the adequacy of refrigeration.

The State Fire Marshal and Evaluation

Since the beginning of the Florida licensure program, the Division of Health has been concerned about the safety of patients in hospitals and nursing homes. State-wide surveys disclosed fire safety

**ENVIRONMENTAL
SANITATION** — A county health department sanitarian checks the cleanliness of a dishwasher in a nursing home. The day-to-day environmental sanitation is the responsibility of the county health department.



problems in many of the older facilities. And in the past, the state and county health departments have depended on local municipal authorities to conduct fire safety surveys. While this was carried out to the best of the local authorities ability and within the framework of local municipal ordinances, there was a need for a higher authority and uniform enforcement of safety procedures.

At the present time, there exists an arrangement whereby deputies of the State Fire Marshal's Office advise the Division of Health and the facility of life safety deficiencies in nursing homes and recommend correction and whether or not the nursing homes should be licensed.

Education and Training

The training of those who are to make surveys of hospitals and nursing homes and the education of administrators, managers, supervisors and staff members of the health care facilities are important factors in the Division of Health licensure program.

An inservice educational program provides better communication between staff members of the state health agencies. Educational programs are also offered to county health departments and providers of health care. These activities help develop an uniform enforcement of the rules and regulations.

The Division of Health, with the cooperation of professional organizations, such as the Florida Nursing Home Association, Florida Hospital Association, and other related professional and voluntary groups, presents workshops, seminars, and short courses for

- * nursing home administrators and personnel — in the area of nursing care, maintenance and meeting Medicare and Medicaid qualifications;

- * architects and engineers — on functional design of nursing homes and hospitals; and,



SAFETY INSPECTION —
A deputy state fire marshal and health care facility maintenance man check the operation of the fire alarm system.

* firemen, public health representatives, and zoning, building and electrical authorities — on fire protection and life safety.

In the past, anyone — a physician, nurse, fisherman, boxer — could be the administrator of a nursing home. Under a law passed by the 1970 Legislature, such persons need to be trained or experienced in the field of institutional administration to qualify as nursing home administrators. They will be registered and licensed by a board of examiners, and after July 1, 1972, all licensees must have completed an approved course of study in nursing home administration.

Civil Rights and Health Care Facilities

Equal rights and treatment of all citizens have been guaranteed under Title VI of the Civil Rights Act of 1964, which states, "No

person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."

Florida's public health programs and many of the hospitals, nursing homes and extended care facilities receive federal money. This means that hospitals, public health clinics, nursing educational programs, or any health care facility that receives funds or equipment, or have federal people in a project, have buildings or property provided in whole or in part by federal money, or benefitted in any way from federal assistance, must comply with Title VI.

The Division of Health and U.S. Office for Civil Rights cooperate to insure that hospitals and nursing homes, home health agencies, and other public health services comply with Title VI and to investigate any complaints of discrimination.

An Effective Evaluation

While the licensure programs discussed in this issue of *Florida Health Notes* seem to be institutional-oriented, or centered on the health care facilities, the people of Florida and their health are the chief concern of the Division of Health and its Bureau of Health Facilities that carry out the hospital and nursing home licensure programs. The patients are the ones with whom we are most concerned.

Laws have been passed; rules and regulations written to make these health care facilities clean, safe and meaningful. We hope you will never be ill. But should you have to be admitted to a hospital, nursing home, extended care facility, or home for the aged, the Division of Health, and the professional and voluntary organizations concerned, are making concentrated efforts to provide you and Florida with the best health care delivery system.

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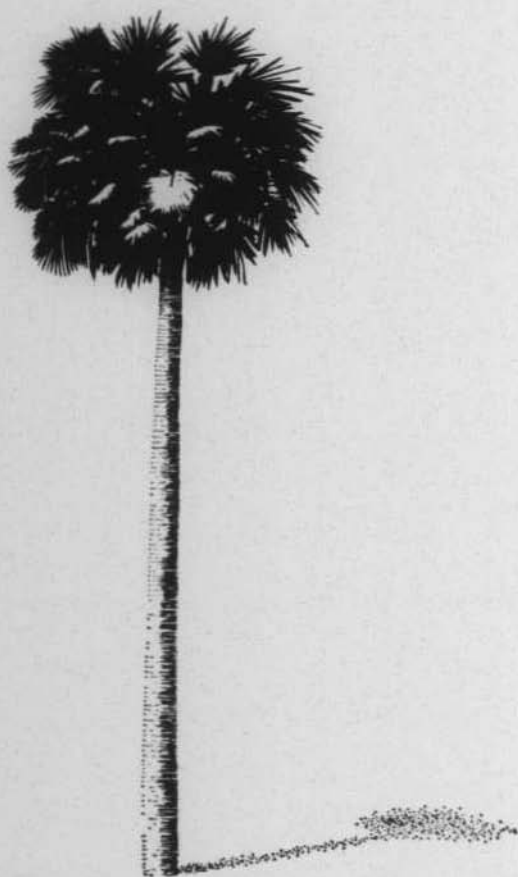
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FLORIDA HEALTH NOTES

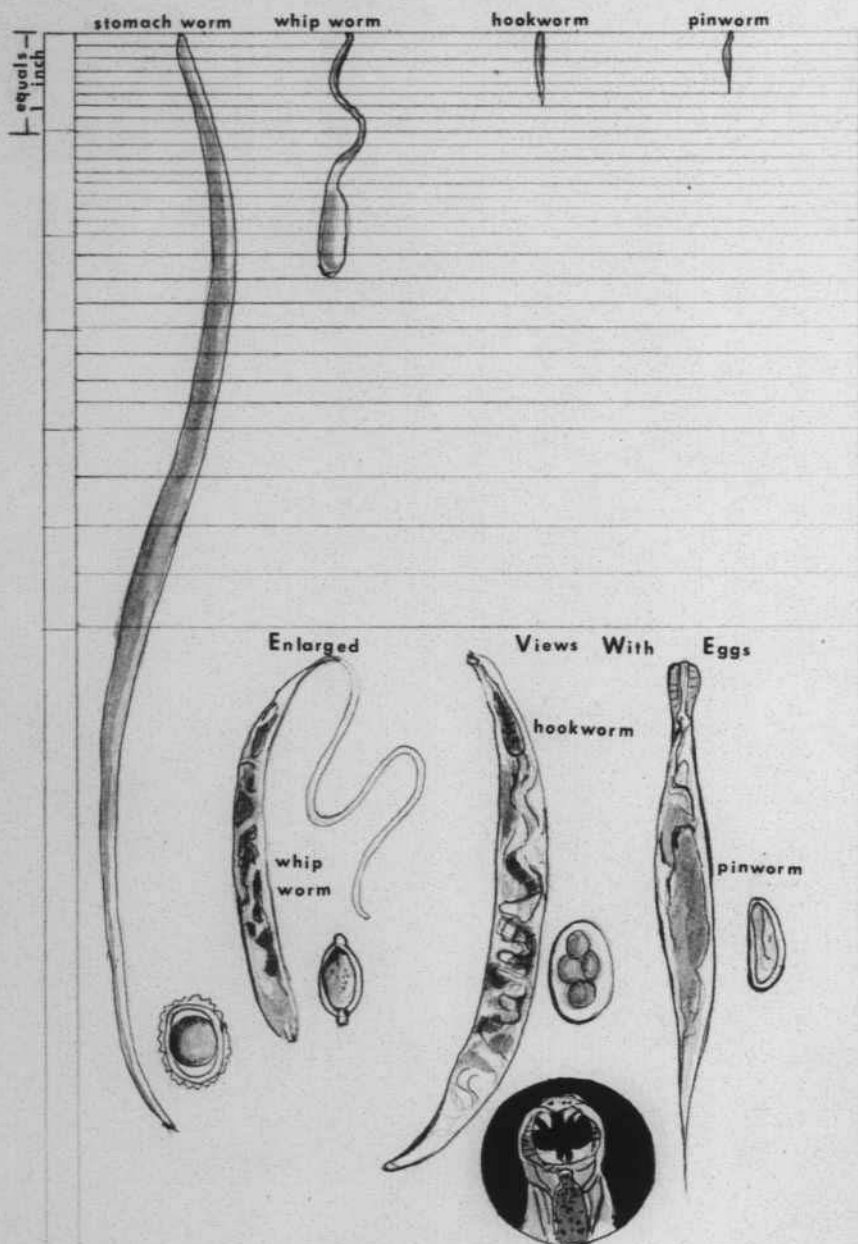


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AUGUST 1971

Intestinal Parasites:
WORMS

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Intestinal Worms (one half actual size)



ONE METHOD OF PREVENTION —
(Cover photo) Washing your hands, especially after using the bathroom and before eating, is one important way to prevent intestinal parasites.

PARASITIC INVADERS — These are one-half the size of actual intestinal worms. Included are enlargements of the three smaller worms and their eggs. Also shown is the mouth part of the hookworm with its "teeth" or hooks that enables it to attach itself to the intestines of humans.

Intestinal *Parasites* : WORMS

Fascinating! Yes, intestinal worms are a fascinating subject. Mrs. Jones, a Florida housewife who called a Division of Health laboratory one day to talk about "those worms my child has," found them an amazing subject. She was surprised to find the variety of animal parasites that thrive at the expense of man's health, and their ingenuity to survive. We hope that you, like Mrs. Jones, will find this a fascinating story.

This subject is particularly timely today for there is a new concern for "ecology" — the study of the relationship between the environment and man and all other organisms. Intestinal parasites provide outstanding examples of these relationships. We shall see that intestinal worms, as a major health problem in Florida, are dependent on the climate, the character of the soil, customs in clothing (particularly the wearing of shoes), the quality of housing and personal habits. Cattle and hogs, cats and dogs, rats, birds, even snails determine the risk of acquiring intestinal parasites.

The record on this problem is particularly impressive for Florida. Scientists and public health workers in the Division of Health have provided leadership in our state — both in the study and the control of these health problems.

This issue of **Florida Health Notes** will tell you something about the unique life histories of the intestinal worms common to Florida, the varying sources and the different ways in which they are acquired by man, some of the intricate routes of travel in the human body, their effect on health and most important — the means of prevention.

PARASITIC WORMS

The dictionary defines a parasite as "a plant or animal living in, on, or with some other living organism at whose expense it is maintained." Our concern will be worms living primarily in the intestines of man which are detrimental to his health.

There are three classes of these parasitic worms:

- * the round worm (nematodes) which are commonest in Florida. They are round, long and narrow and differ markedly in size and habits.

- * the tape worm (cestodes) in contrast are flat, ribbon-like and consist of multiple segments increasing in size from very small ones attached to the head of the worm to quite large ones. These are literally a bag of worm eggs which break off and are passed in the feces.

- * the leaf-like worm which does not occur naturally in humans in Florida. This is present in Puerto Rico, wide areas of South America, in much of Africa, and is a particularly serious health problem in China, Japan, the Phillippines and Egypt. In one stage of its life history it will live and grow only in a tiny snail which fortunately is not found in our area. In view of its importance in world health, a brief reference to this parasite will be included.

The intestinal tract of man is filled with living organisms. Most are bacteria which feed on intestinal contents and multiply rapidly. Occasionally, disease-producing bacteria are acquired which also multiply, attack the intestines and may cause very severe illness. Most of the intestinal worms differ markedly in that the adult worm do not multiply in man. The number of worms is no more than the number of eggs or larvae which enter the body and develop there. The damage to the health of man is directly dependent on the number of eggs which have been acquired.

These intestinal parasites lay eggs which are passed with the feces. It is estimated that the female of one of the larger worms may

FLORIDA HEALTH NOTES

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ABANDONED — Privies were once the first line of defense against hookworm disease. While still found in rural Florida, they are being replaced by septic tanks and sewage treatment plants.

pass as many as 200,000 eggs each day. The tiny eggs of the different worms are distinctive in appearance. A microscope is needed to detect their presence and to identify them. It is from the appearance of the eggs that a diagnosis is made.

The ways in which these worms reproduce, grow, are acquired, and affect man differ markedly. Hence, we turn to the specific life history of intestinal worms common in Florida.

HOOKWORMS — NO BIGGER THAN AN EYELASH

The mature hookworm, male and female, live in the small intestines. The female, larger than the male, is about one-half inch long and has been compared in size with the human eyelash. This small

THE BUSHES — Using the great outdoors as the bathroom can lead to the spread of hookworm disease.



worm lays from 10,000 to 20,000 eggs a day. These are passed in the feces. A larva will mature in the egg when the feces are mixed with a moist sandy soil at a temperature normal for summer days in Florida. Under these favorable conditions, a larva will hatch in about two days. It feeds and grows rapidly. At about five days, it has reached an infective stage. The immature parasite enters a resting stage, does not feed, but may live as long as two months. During this time, if it comes in contact with the human skin, it immediately becomes very active. In only a few minutes it will burrow into the skin and reach one of the blood vessels. Some irritating substance aids its penetration of the skin and this causes an intensely itchy inflamed area. Most commonly this is on the feet and the skin condition is known as "ground itch."

Within the next week, the larva is carried with the blood to the heart and from the heart to the lungs. There it escapes from the very small blood vessels into the smallest air sacs. From here it reaches the larger air passages and is finally coughed up into the throat, and is likely to be swallowed. When it passes through the stomach and reaches the small intestines further development follows. It grows, passes through two developmental stages (molts), and finally be-

comes an adult. It attaches itself to the intestinal walls and feeds on blood of the victim. The male and female together begin the reproductive process, and soon the female is laying its eggs and the complex life cycle begins again.

The effect on man depends on the number of worms in the intestine. With only a few there are no symptoms even though the presence of the hookworm may be detected by the finding of its eggs on examination of the feces in the Division of Health laboratories. With a few hundred worms, the symptoms may become quite severe due in part to the loss of blood and in part to toxic substances given off by the parasites. Together they cause a lack of energy, listlessness and dullness. The infected child does not grow normally. Health is regained on detecting the presence of the worms and providing appropriate treatment to free the individual of most or all of his "worm burden."



PROPER PREVENTION

— Using the bathroom and washing hands afterwards are important in the prevention of hookworm disease. As an additional protection, children should be provided with shoes and taught to wear them.

The worm's life history shows that certain conditions permit the spread of hookworms. Of most importance is the lack of proper sanitary facilities. In earlier years in Florida, the yard was the toilet for the rural poor. The feces, covered and mixed with dirt, provided for the hatching of the hookworm eggs and the development of the larvae. Moreover, there was close contact between the individual and the soil. In those days, children regularly went barefooted and played in the yard which had been used as an outside toilet. This provided an opportunity for them to come in contact with infective hookworm larvae. Hence, of greatest importance in the prevention of the spread of hookworm was the provision and use of proper sanitary facilities. This alone would have been highly effective. However, as additional protection, children needed to be provided with shoes and taught to wear them regularly. An added means of prevention was to detect those who are infected and to provide proper treatment. In earlier years, this was a major health program in public health units and in schools serving rural areas. From a major health problem of a few decades ago, hookworm disease is now rarely encountered in Florida.

The life history of the hookworm was first determined about the turn of the century. The first active and aggressive control program was started in Florida in 1908. It began with the education of teachers — all of whom were placed on the mailing list of **Florida Health Notes**. The record states "the interest that evolved throughout the state is almost unbelievable." Simultaneously, the State Health Officer offered to pay private physicians for the treatment of those with hookworm provided fecal specimens were submitted and found positive for these parasites. It was much later, in the 1930's, that attention was given to proper sanitary facilities. During the depression years, county health departments had campaigns for building and installing sanitary privies. Later, when economically practical, the use of septic tanks was encouraged. Hookworm infections are still found in Florida but today a more disturbing illness is caused by dog and cat hookworm than by the human variety.

This adds an interesting "sidelight" to the story. The hookworms of our pets are in general similar to those of humans. The eggs are passed in the feces of dogs and cats. The larvae develop, hatch and

are present in the soil around and under houses. Children playing in the sand and plumbers working under houses come in contact with these larvae. When they reach the human skin they penetrate it. From this point the larvae of the animal hookworm are unable to get into the blood vessels and can only burrow under the skin. In this penetration and in their travels, the larvae cause severe irritation — a skin condition known as “creeping eruption.” Only a few larvae can cause severe discomfort and a problem which requires skilled medical attention.

STOMACH WORMS (ASCARIS)

In contrast to hookworm infections — which have been reduced markedly in their occurrence — infections with ascaris may be increasing rather than decreasing. At present, it is the most common intestinal worm found in Florida. Furthermore, it is as common in South Florida as in other parts of the state, whereas hookworm was particularly prevalent in the northern rural counties.

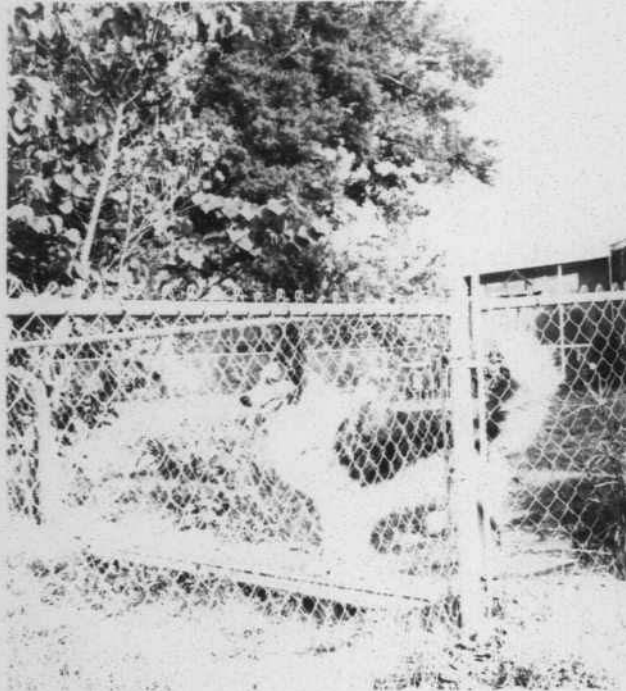
The ascaris is a large worm; the female grows to a length of 10 inches or more while the male is smaller. A person can readily appreciate that a number of such worms in the intestines can cause serious trouble by blocking the normal bowel functions and by “stealing” the nutritive value of the individual’s food.

Parents, uninformed regarding this intestinal parasite, may be shocked at the sight of one or more of these worms in a child’s stool. What is even more disturbing, a worm may be occasionally vomited by the child; they have been known to crawl from the stomach to the throat and out the nose. Parents should know that occasionally a child does acquire these worms and that if one appears others may be present. A laboratory examination should be made and effective treatment, if needed, should be started.

Unlike the hookworm, the ascaris does not suck blood from its host. It obtains its food from the semi-fluid, digested material in the intestine which effects the nutrition of the child. However, it may cause more serious problems by the bulk of multiple worms. This mass can obstruct the intestinal tract, a condition which requires immediate surgical attention.

CREEPING ERUPTION —

Dog and cat hookworms, when they penetrate the human skin, cause a condition known as "creeping eruption." Control includes the confining of pets and cleaning up after them.



As is true with the hookworm, the female ascaris produces and deposits large numbers of eggs in the feces. Following this the embryos in the eggs develop provided conditions are favorable for their growth. The requirements are a temperature of about 80 degrees, Fahrenheit, moisture and oxygen — and fecal contamination mixed in moist sandy soil on a summer day in Florida. After a growth period of about a month, the eggs are ready to hatch. At this time they need to reach the mouth on contaminated fingers, unwashed vegetables, or in other ways and be swallowed.

The digestive juices activate the larvae and lead to hatching, which ordinarily occurs in the small intestines. These freed larvae will not grow in the intestines. Rather, they penetrate the intestinal walls, reach the blood streams, commonly pass through the liver to the heart, and then are carried to the lungs. Here there is a period of about 10 days for further growth, involving two molts. Often this produces pneumonia-like symptoms.

These tiny larvae, about one-tenth of an inch long, will continue their development only if they are coughed up, swallowed and reach the intestines. These baby worms grow to be adults in about two months. Unless disturbed by medication or other conditions, they live about a year. Though many eggs are produced by one female, there is only a remote possibility that one will find its way successfully through this complicated process.

As with the hookworm, prevention requires proper sanitary provisions which prevent the contamination of soil with human feces. Furthermore, cleanliness of the hands is important. Some children have an urge to eat dirt and this provides a ready opportunity for swallowing ascaris eggs which will hatch and continue their development within the child.

Ascaris may be found among all socioeconomic groups; but it is common in the poor. Stool specimens for laboratory examinations should be obtained from children of families in which this intestinal parasite is most likely to occur. When the eggs of this worm are seen under the microscope, effective treatment which causes the adult worms to be discharged in the feces can be provided.

PIN WORMS — SEAT WORMS

Pin worms affect the rich and poor alike. Furthermore, when they are present in one family member, most or all of the household may become involved. Therefore, control measures require examinations of all in the family with simultaneous treatment given to those affected.

These intestinal worms are thread-like, and about a quarter to a half inch long. To the unaided eye, they appear quite similar in size and appearance to hookworms. The adults live chiefly in the large intestines. The unusual feature of this worm is that the females do not deposit their eggs in the intestines but crawl through the anus and deposit them on the skin folds surrounding the anus. Having done this, the female either disintegrates or returns through the anus into the intestinal tract. The pin worm eggs or material de-

posited with them are very irritating to the area and cause intense itching. Scratching follows, and in this way eggs will get under the finger nails and are also scattered throughout the night clothing and bedding. Some eggs reach the floor and are mixed in the dust. From these sources, they readily spread to other members of the family.

A few hours after passage of the eggs, the embryos within develop into infective larvae. If swallowed, the larvae hatch and grow into adults in the intestine. The larvae in the eggs remain alive and infective in the household environment for up to a few weeks. Thus occasional reinfection of family members may still follow even when all have been treated for this parasite. Exacting cleanliness about the house is a necessary part of freeing the home of this worm infestation.

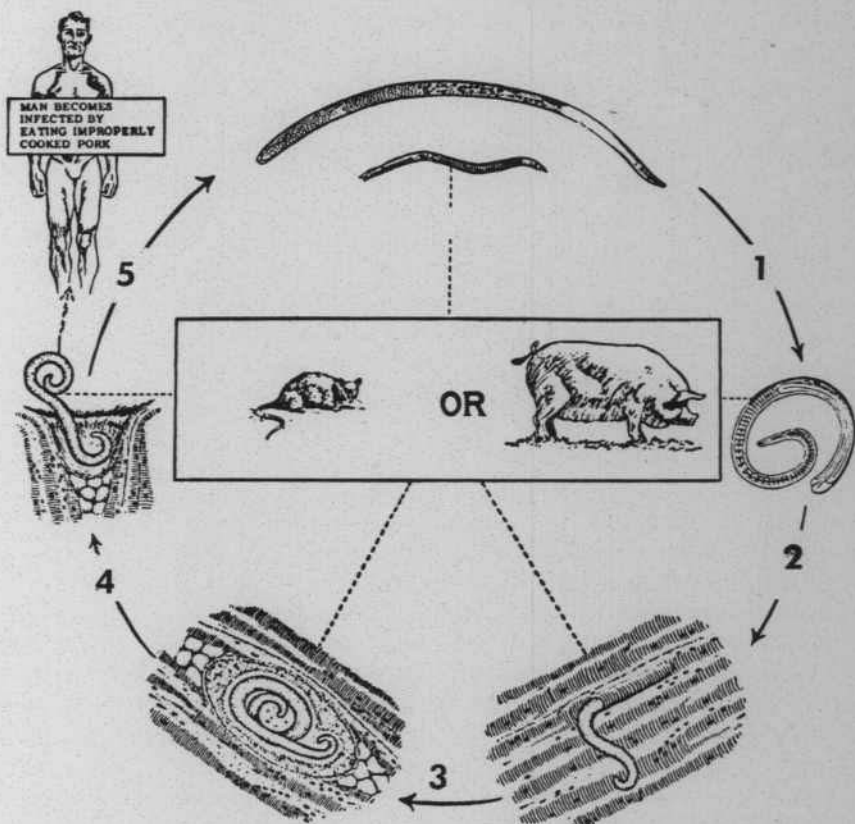
A particular type of laboratory specimen is required for the examination for pin worms. The eggs are rarely found in the feces; they are on the skin around the anus. The specimen needed for their detection is obtained by applying scotch tape to the anal area where the eggs have been deposited and submitting this specimen to the laboratory for examination.

An appropriate kit with instructions for the taking of these specimen is available and is provided by the Division of Health through the county health departments or private physicians. When children are troubled with itching about the anus or genital organs, observations at night when a child is asleep may reveal the adult worms in these areas. No other intestinal parasite behaves in this manner, and small slender white worms about one-third of an inch long can hardly be anything other than pin worms.

WHIP WORMS

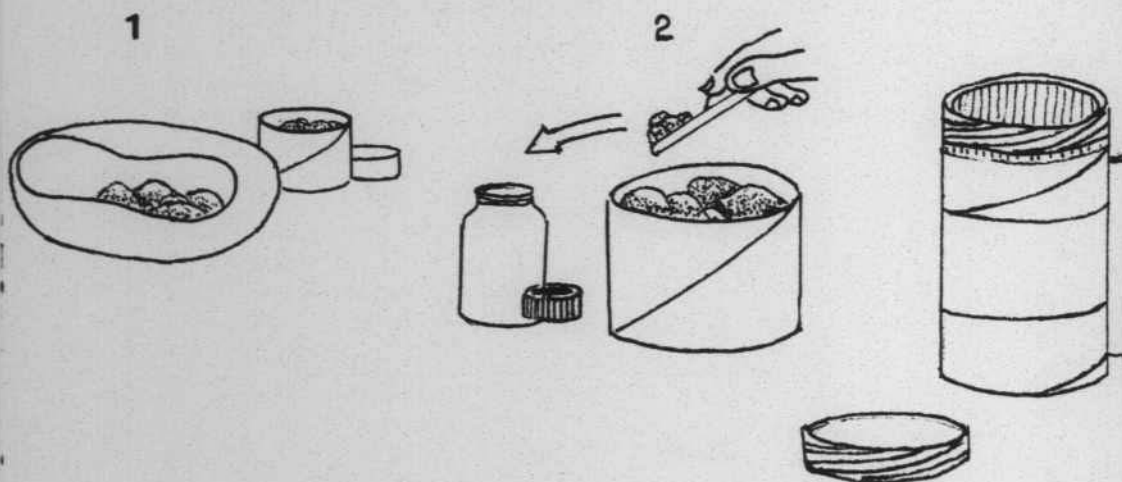
The whip worm is a pinkish gray worm with the unusual distinction of looking like a whip — a robust rear end (the whip handle) and a slender front end (the whip). It is world-wide in its distribution but is more prevalent in the warm, moist regions of the earth. Though not as common as hookworms, or ascaris, the whip worm is also found in Florida. It is transmitted from person to person in much the same manner as ascaris. The eggs are passed in the bowel movement and as with ascaris 10 days to two weeks thereafter are

LIFE CYCLE OF TRICHINELLA SPIRALIS



TRICHINOSIS – The female of the worm that causes the disease of trichinosis (top) deposits larvae (1) in the tissue of the intestines of the host. These larvae are carried (2) by the blood to muscles where the larvae enter the fibers and become encased in a protective covering. (3) When the infected meat is eaten by man or animal, the larvae are freed (4) from the muscles, enter the intestines, and become adult worms. (5) The cycle begins again. Man becomes infected by eating improperly cooked pork.

required before the eggs become hatchable. If these are swallowed at this time, they will hatch in the stomach or intestines and grow to adulthood.



CORRECT PROCEDURE — In collecting specimens for laboratory examinations, the stool should be passed into a dry container (1), ready to be placed in a special bottle that is available from the Division of Health. (2) Using a tongue depressor, clean knife or applicator stick, place a walnut size piece of the stool in the glass bottle. Screw the cap on tightly. (3) Place the glass bottle in the cardboard mailing container, pack with cotton to protect the bottle from breaking, enclose the properly-filled out data form, and mail or deliver to one of the Division of Health's laboratories.

Eggs that are ready to hatch may reach the mouth from contaminated hands, from vegetables, and on occasions, through water. However, the eating of soil by children is a major source of this infection. The adult worms live from one to several years in the intestines. They do not cause serious symptoms, but nevertheless, when the eggs are found, appropriate treatment should be given to the individual for these parasites.

THE PORK DISEASE — TRICHINOSIS

As compared with other intestinal parasites, the round worm (*Trichinella spiralis*) that causes trichinosis is unusual. The adults are

small, barely visible without magnification. They multiply in the intestinal tract. The female burrows into the intestinal wall and deposits larvae, not eggs; she may give birth to at least 1,500 larvae over a period of six weeks. Furthermore, trichinosis is primarily an infection of animals, chiefly rats and hogs; man becomes infected accidentally. Also, this infection is not spread by a person who acquires the parasites. No specific treatment of proven value is available for the disease caused by these organisms. The illness persists for weeks, occasionally for months, and death may result.

In nature this is an infection chiefly of black and brown rats. It can be spread among rats only because they eat their own kind (are cannibalistic). The tiny larvae born within the intestinal walls, readily reach the blood stream. These have a diameter of less than a blood cell and are able to pass freely through even the smallest blood vessels.

Thus the larvae after reaching the heart are distributed throughout the human body via the blood stream. Only those which reach muscle tissue as in the arms, legs or diaphragm continue their development. The greatest invasion is in those muscles with the richest blood supply, particularly the diaphragmatic and other muscles concerned with breathing and those controlling the functions of the throat and eye.

USE THESE — When sending in stool specimens, you should use the sterilized bottles, data forms and mailing containers supplied by the Division of Health through the county health departments.



The larvae are provided with a boring apparatus by which it is aided in penetrating muscle tissue. Within two weeks it assumes a spiral form and is incased by protective cells from the host. With this protective covering, these larvae remain alive for as long as 10 to 20 years in the human or as long as the life span of the rat or hog which they infect. These larvae will develop only when the muscle in which they are encased is eaten by an appropriate host. They are freed from the muscle tissues after digestion and grow to the adult stage and the complex reproductive processes begin again.

This whole life cycle can be completed in cannibalistic rats. Those dying from the infection are eaten by other rats which themselves may be killed by the disease. The infection is spread to hogs which eat dead or dying rats which normally live around pig pens. The infection may also be spread from hog to hog if garbage containing pork scraps are fed uncooked to hogs. Regulations in most localities now require that such swill be cooked before being fed to hogs.

DANGER — Children playing in the dirt are in danger of acquiring intestinal parasites of several kinds. If they are not watched, they may put dirt in their mouths. If the eggs of such parasites as stomach worms are present in the soil, the children may become infected.



Trichinosis is acquired by man in one way only — by eating incompletely cooked pork products from animals which have been infected by this parasite. The disease can be prevented by thoroughly cooking pork before eating. It is just as simple as that. Serious symptoms result when a substantial number of these parasitic worms are eaten at one time. This in the past has happened most commonly where animals are killed in a small abattoir or on a farm for home use. The symptoms of this disease in humans are those of a disorder somewhat resembling typhoid fever. In most human infections, the number of parasites eaten are small, and the symptoms, if any, are so mild that they are unrecognized. However, these milder infections are not uncommon as has been determined by examination of muscle tissue from persons who have died from other causes. In this way, the incidence of infection in the United States has been reported as about 17 percent of all adults. Almost all of those infections detected by examinations after death have been unrecognized during life. Trichinosis is practically unknown in Moslems and in persons of the Jewish faith, who avoid the use of pork as food.

Prevention of trichinosis in man demands that all pork products used as food be properly cooked. Particular attention needs to be given to ground meat products and "hot dogs" which commonly include pork scraps and are often served with inadequate cooking.

Another precaution against this infection is a requirement for the refrigeration of pork products before distribution. The larvae in the muscle are killed by refrigeration. The length of time necessary is determined by the temperature. At low levels, all parasites are killed within one week. At higher refrigeration temperatures it may require as much as three weeks. Inspection of meats does not effectively detect the presence of this parasite. The cooking of garbage before feeding to hogs is important in prevention. The control of rats and the raising of hogs in a sanitary environment also aids in the control of this infection.

TAPEWORMS (CESTODES)

This class of worms differs greatly from the round worms mentioned above. Some species encountered in Florida grow to a length of 10 feet or more. Each of these worms has a head and neck and a

LABORATORY WORK —
Stool specimens are re-
ceived at a Division of
Health laboratory . . .



varying number of segments. These segments are very small at and near the neck and become progressively larger as they progress toward the end. Each segment has both female and male sexual organs. The final segment appears to be little more than a container filled with eggs which are freed only when the segment ruptures. They may break off and be passed in the feces intact, or the eggs may be squeezed out during bowel movement. More commonly, the segment disintegrates in the feces and on microscopic examination, the distinctive eggs are identified.

The tape worms with which we are concerned all have two hosts. In the beef and pork tapeworm, the embryo lives in the animal, the adult in humans. The eggs are passed in the feces of an infected man. For development, the fertile eggs of the beef tapeworm must be eaten by cattle, and for the pork tapeworm — by hogs. The embryos hatch, then penetrate the walls of the intestine and migrate by way of the blood to muscle tissue. There they may live for the life of the animal. When insufficiently cooked beef or pork from an infected animal is eaten by man, these larvae will be freed and develop into the adult form in man. Adult tapeworms are attached to the intestinal walls and absorb their nutrition from the pre-digested food present in the host's intestinal tract. This reduces the food available

to man and may lead to the listlessness and anemia common in persons with this intestinal parasite.

Another variety of human tapeworm rarely encountered in this country is the fish tapeworm. The intermediate host for this parasite is a fish. Thus the prevention of all types of tapeworm is dependent upon the safe disposal of human feces, so animal or fish will not acquire the infection, and in adequate cooking of meats and fish to destroy the embryo if it is present. The presence of tapeworms in the intestine is determined by microscopic examination of feces and the finding of the eggs of the worm. Appropriate treatment will free the individual of the infection. In this, it is important that the worm or worms when passed be examined in a Division of Health laboratory to determine with certainty that the head has been passed. If only segments are found, and if the head is still attached to the intestinal wall, the worm will continue its growth and retreatment will be required.

Other types of tapeworms may be encountered. The rat tapeworm, which is very small, is acquired in an entirely different way. In this, a certain type of small meal beetle eats the rat feces containing the tapeworm eggs. After hatching, the larvae develops and is encased within the insects' bodies. These beetles then get into corn meal, oat meal and other cereals. If this food, contaminated with these beetles, is eaten by man, the infection may be transmitted to him. This is the most common type of tapeworm in Florida today.

... where they are put through a procedure that makes it possible for microbiologists to detect the eggs of intestinal parasites.



There are also **dog and cat tapeworms** which are sometimes acquired by humans. In these cases, fleas eat the tapeworm eggs in the feces of pets. A common practice of children is to locate the flea and mash it between the fingernails. If hands are not thoroughly washed after this "defleaing operation," infective larvae may contaminate the fingers and nails from there they reach the mouth and get into the intestinal tract.

To avoid tapeworms, be sure that pork, beef, fish and cereals are cooked well. And you should always wash your hands thoroughly after defleaing your animals and before eating.

Another tapeworm — **achinococcus** — must be mentioned since it illustrates the variety and the fascination of these infections. The adult lives primarily in the dog, and eggs are passed in its feces. Other animals, such as sheep and cattle, and occasionally man, swallow these eggs. They hatch in their intestines, the embryo penetrates the intestinal walls and is carried throughout the body by the blood stream and develops into a cyst where it lodges. The unusual feature is that the embryo reproduces itself from the inner walls of this cyst. Each new embryo may reproduce and, in time, what began as a small parasite may become a very large cyst. This occurs most commonly in the liver but other organs may be affected. Usually only one such cyst occurs in an individual.

Treatment requires surgical removal. There is no transmission from man. However, should this cyst develop in a cow or sheep and should this diseased organ be eaten by dogs, then this tapeworm matures in dogs and the life cycle begins again.

While this condition may occur in almost any part of the world, it has been particularly common in such areas as Australia and Finland where dogs, man and domestic animals live in close association. The few cases seen in Florida have been in persons from Central and South America.

FLUKES (TREMATODES)

As mentioned earlier, these leaf-like worms are a major cause of severe disease in substantial areas of the world. The nature of the adult worm varies as do the illnesses caused by them. However, there is general similarity in the interesting life histories of these parasites.

The eggs commonly are passed in the feces. But in one variety of flukes, they are passed in the urine, and in another variety in the sputum. Development continues when these eggs reach water. A free swimming microscopic larva is hatched. Continued development occurs only when this larva reaches the soft tissue of a particular variety of snail. Within the snail the larvae multiply. A second type of free swimming form is discharged from the snail into the water. Man becomes infected when working or swimming in this infected water; the embryo entering through the skin.

In some flukes, the embryo from the snail may attach itself to a particular type of crab, fish or vegetation growing in the water which may be eaten by man. From these sources man acquires the embryo. Where food production for the population depends on working in water — as in the growing of rice or the use of water for irrigation — repeated exposure and infections occur, thus adding damage to already damaged organs which eventually leads to disabling and finally fatal illnesses.

Swimmers itch, an annoying skin irritation, follows swimming in some fresh water lakes in this country. Until recently the cause was a mystery. Now it has been determined that birds may be infected with these flukes. Eggs are passed in their feces which often reach the water. Here the larvae develop in snails into the free swimming embryo ready to attach itself to the skin of an available host. When people swim in waters contaminated by this parasite, the embryos attack the human skin and are able to penetrate into it. However, man is not the natural or desirable host and the parasite is able only to make its way into the skin. In doing so, it produces an itchy inflamed eruption, commonly called "swimmer's itch."

Annual surveys of fresh water canals in Florida are made by the Division of Health to establish that the necessary snail hosts are not found in Florida. Were these snails available, the flukes which cause serious disease in man undoubtedly would be introduced and spread. This would be a health problem that would modify the recreational activities in the state.

Where these infections are a major health problem, no single effective preventive measure has been found. We would think of the safe disposal of human wastes as the solution. However, in countries

where agricultural economy necessitates the use of human feces for fertilizer, fecal material harboring parasite eggs will reach the soil and water.

Another approach is through attempts to destroy the snails in which the parasites develop. However, the chemicals which are effective for this are also destructive to vegetation. Thus, this is an ecological problem for which at present no acceptable solution is apparent.

THE PUBLIC HEALTH PROBLEM

There is no accurate knowledge as to the number of persons in Florida with intestinal worms. It is known that intestinal parasites have been a major problem, and that there has been progress in control. However, continued vigilance and the application of preventive measures are needed.

THIS LOOKS LIKE ...
Microbiologists at the Division of Health's Central Laboratory, who are specialists in parasitology, discuss the finding of eggs of an intestinal parasite in a specimen. Over 11,000 positive specimens were detected in 1970 in the 88,000 specimens submitted for examination.



There are many causes for the occurrence of intestinal parasites but standing above and contributing to all other causes are ignorance and poverty. Of these, the former is more readily subject to correction. Hence, it still must be urged that teachers, parents and indeed — all citizens — should be more adequately informed on this health hazard. In homes and schools and through radio, television and newspapers, there must be progress in the dissemination of accurate information and in creating attitudes which lead to desired health practices.

It is sad commentary on the American social order that this nation — with the highest economic standards — still has a substantial segment of the population without adequate income to provide for healthful environment and for healthy living. It is this portion of the population which has been and is predominantly affected by intestinal parasites. This added burden makes the attainment of suitable living conditions more difficult. These underlying causes of health problems must be solved.





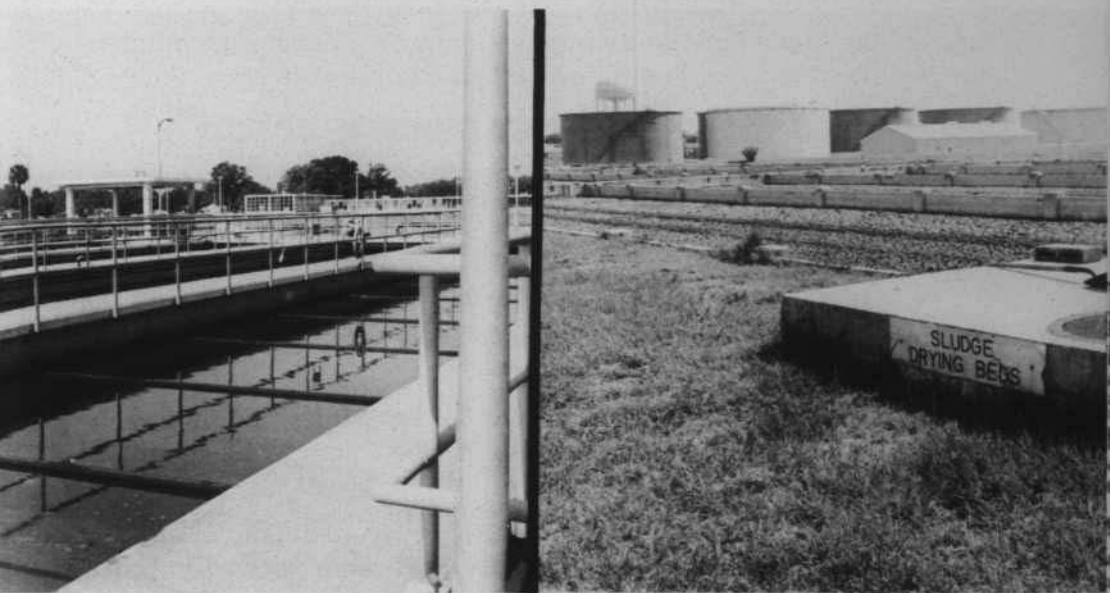
PREVENTIVE MEASURE

— Sewerage systems have played a big part in the prevention of intestinal parasites, especially hookworm.

PREVENTION

Specific preventive measures require the providing of safe means for the disposal of human waste, particularly feces, urine and sputum, which may contain infective agents. It must be understood that any contamination of soil with feces favors a spread of intestinal parasites. Were the problems of poverty solved, one could anticipate that every family would have suitable housing and modern sanitary facilities. The least which may be considered acceptable is a sanitary privy for every home. This may be within the economic reach of those in Florida, but for many parts of the world even this is economically unattainable.

Another important means of prevention is to reduce the source of infection. This involves detection of persons who may have intestinal worms and the providing of proper treatment to free them of these parasites. This alone would be an effective preventive measure if it could be carried out completely. However, with many infections causing no worrisome symptoms, there can be little hope of finding all who harbor worms and so treating them that all of the parasites will be eliminated. Thorough treatment is an essential part of preven-



tion, it has been and still is needed for the cure of conditions which are detrimental to health.

Still another preventive approach is to reduce skin exposure to infectious agents which may be in the soil. Thus the wearing of shoes has been of high importance in the control of hookworm disease. Now, it must be remembered that soil contaminated by feces of pets may be hazardous; owners should be required to clean up after their pets.

Children should not play in sand or dirt which may have been used as "toilet areas" by cats and dogs. In many parts of the world, skin exposure to polluted water may involve a serious health hazard. The search for practical control measures must go on.

For some parasites, prevention requires reducing exposure by ingestion. Animal flesh used for food and even fish and some vegetables may contain infectious agents. Proper cooking is required particularly for pork and pork products. Contamination may be carried to the mouth by hands. Teaching children to wash their hands before eating is a public health need. There are those children who for undetermined reasons have an urgent need to eat dirt. This direct exposure to infectious agents must be prevented.

Though relatively uncommon for intestinal parasites, it must be remembered that infectious agents may be carried in dust. Cleanli-

ness of the home and its environment must be given consideration in prevention of intestinal parasites, particularly pinworms.

Prevention demands the work of everyone.

- * It demands the informed participation of parents.
- * It requires that teachers be effective in health instruction both in schools and for the public.
- * It demands that Division of Health and county health department workers continue to have a major role in intestinal worm eradication.
- * It requires that nurses in schools, clinics and homes be alerted to possible cases and arrange for specimens to be submitted to Division of Health laboratories.
- * It requires that county health department sanitarians and sanitary engineers provide community leadership for the improvement of sanitary facilities.
- * It necessitates that physicians in county health departments and private practice give guidance to diagnosis and treatment.
- * It requires the highly skilled laboratory worker to identify the eggs of the parasites and the parasitic worms themselves when they can be found.

Prevention requires organization and community action. Leadership appropriately may rest with health officers who stimulate and guide appropriate activities — both of their staffs and of others in the community.

The work which has been carried on so effectively in recent decades in Florida must be continued.

PIONEER IN HOOKWORM ERADICATION

Florida's State Board of Health (now Division of Health) instituted a campaign against hookworm in 1908, several years before programs were started by other health agencies in the Southeastern United States. In 1910, the Rockefeller Sanitary Commission and directors of sanitation from other states visited Florida to study the methods of hookworm detection and eradication instituted by Dr. Joseph Y. Porter, Florida's first state health officer, and the results of the campaign.

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**Division of Health
of the
Florida Department of Health and
Rehabilitative Services**

FLORIDA HEALTH NOTES



VOLUME 63 — NO. 9

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*Health
Profile Screening*

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MANY TESTS (Cover photo) — The multiphasic health profile screening examination includes a number of tests of the individual's bodily functions.



IT WON'T HURT — The drawing of blood from the finger is one way of testing for possible diabetes. Many such monophasic screening programs are held each year throughout the Sunshine State.

HEALTH PROFILE SCREENING

Mrs. Smith, a Florida housewife, felt fine and had no apparent health problems. She had every reason to believe that she was in good health. One day, while shopping, she stopped at a table in the mall where some people were signing cards.

"This is a health screening program," a woman behind the table explained. "Did you read about it in the newspaper?"

"No!" Mrs. Smith replied, "But it might be a good thing to have the tests."

"Just fill out the card and take it to the American Legion Hall and the people there will tell you what to do."

Mrs. Smith kept her appointment, and went through the tests: a brief medical history, weight, height, blood pressure, tonometry, visual acuity, blood tests, and chest x-rays. The whole thing didn't take more than 30 minutes.

Mrs. Smith was told that her physician would be notified of the results of the examination. A few days later she received a card advising her to consult her family physician.

Through the screening program, Mrs. Smith, who believed she was in good health, discovered that she had screened positive for diabetes and high blood pressure, and should see her physician.

Like Mrs. Smith, you may think that you are in good health, with no apparent problems. You may have a little ache here and there, but perhaps you attribute it to the fact that you are growing older. If you are a young person, you may be enjoying good health and you don't think about future health problems.

BUT — did you know that studies conducted in several

Southeastern states, including Florida, indicated that each person over 25 years of age has 1.5 chronic diseases? More than 75 per cent of people 65 and older have one or more chronic conditions; the older a person is the greater are his chances of having a chronic disease that may disable him.

Therefore, it is necessary that people have periodic examinations. Sometimes, this is not feasible for one reason or another, and because of this, health screening programs are becoming a practical means of finding those persons who have the potential or conditions that lead to a chronic disease.

This issue of Florida Health Notes will tell you about the value of periodic health examinations and why health profile screening programs are important. It will also tell you about the programs carried on by the Division of Health and the county health departments in the areas of chronic diseases — heart disease, diabetes, glaucoma and cancer — and something about the older health profile screening programs in the communicable diseases — tuberculosis and venereal diseases. Some of the health screening programs carried on by a few of the county health departments involve the whole person.

Responsibility of Medicine

Since the days of the early Greeks, physicians have assumed a responsibility for the preservation of life and the alleviation of suffering. The precepts of the Hippocratic Oath which are followed by physicians include prescribing "... for the good of my patients according to my ability and my judgement and never do harm to anyone."

Medical knowledge, which still follows the Hippocratic Oath, has been utilized in the successful prevention of many diseases of infants

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ABOUT HEALTH PROFILE SCREENING

Most physicians prefer to treat diseases before they have become serious or chronic. Screening examinations are **NOT** diagnostic, but may point to conditions for which one needs to consult his physician.

Results of the screening examinations are reported only to your physician. However, the screenee is notified in writing within a few days if for any reason the tests are considered not to be within normal limits.

Health profile screening examinations have been planned to best fit the needs of the individual, considering his sex and age. A check on the history, height, weight, blood pressure, eyes, x-ray of the chest, blood sugar and other screening examinations are given to provide the physician with valuable information, which may indicate the Health Profile Index or health picture of the individual.

In case the screenee is advised to visit his physician for further study, he should do so promptly as may be consistent with his convenience. Remember that screening examinations do **NOT** replace a **THOROUGH PHYSICAL EXAMINATION** which can only be done by your physician.

**Wilson T. Sowder, M.D., Director
Division of Health**

and schoolchildren. The old State Board of Health (now Division of Health), as early as 1915, was given the authority by the Florida Legislature to carry out medical inspection of schoolchildren. Since that time, many of the communicable diseases have been reduced and some have been eliminated.

In the same manner, current knowledge, when applied to people in the middle years of life, may prevent disability from occurring in the later years.

The broad responsibilities of medicine include:

- * the provision of reliable health guidance;
- * disease prevention;
- * early identification of potential hazards to health;
- * early detection and disease diagnosis;
- * adequate treatment; and
- * rehabilitation.

HEALTH SCREENING — A screening program for a chronic disease may be held at health fairs, community centers, churches, schools or various other places where people gather. This one takes place at a shopping center.



Legislation passed by the U.S. Congress gives much effort, attention and money to the health of the aging, but the laws do not make provision for periodic medical examinations, for screening for early disease detection, and for disease prevention.

The Health Examination

In the past, many people sought the service of a physician only in time of illness. They envisioned a visit to the doctor only as the last resort. The hospital was a place where you went when you were at death's door. But today's 20th Century Floridians know that periodic health examinations are necessary and desirable to detect any change in their bodies that may lead to health problems later in life.

Every family needs a physician. And the relationship between the doctor and the family should be such that he knows each member of the family, the medical history, and what the prospects are for a healthy future. In order to obtain this knowledge, each member of the family should have periodic health examinations throughout his lifetime.

The periodic health-maintenance examination, conducted in the atmosphere of the traditional physician-patient relationship, is ideal

for the early detection of diseases before they develop into disabling chronic conditions.

On the basis of reports from the National Health Survey, public health officials have estimated that millions of visits are made each year by American adults to physicians. Only a fraction of these are made for general health examinations.

Frequently it is the individual who initiates these health maintenance visits which are scheduled during the physicians' regular office hours. Ideally, considerable time should be allowed for such examinations, but the physicians' time is so filled with taking care of seriously-ill persons that the doctors cannot devote much time to individuals who have no specific complaints.

In some instances, the inability of physicians to devote more time to the care of supposedly healthy individuals has led many industrial corporations to set up and maintain their own Employees Health Service. Some large firms provide periodic medical examinations from private physicians or clinics.

Many major companies have policies that require executives at the policymaking and operational level to undergo regular comprehensive health examinations. These may not be available to all employees. Thus, regular health evaluations for all adults have not been attained by the industrial sector of the country. Neither are regular health examinations available to all American citizens because of the limited health and medical resources.

There is a large gap between the number of Floridians who are receiving periodic health examinations and the population in general who may need this type of medical service.

The Health Profile Screening Program

In 1900, major health problems in Florida included yellow fever, smallpox, diphtheria and tuberculosis. These diseases have been reduced and are no longer seriously considered as major diseases. Three chronic diseases that occur frequently in many persons' lives are the top health problems today. Since 1950, cardiovascular diseases, cancer and stroke have been responsible for some 70 per cent of all Florida deaths — far outranking other causes.

The management of these and other chronic diseases is the major health problem facing public health now that the communicable diseases are essentially under control. This demands that people discard old concepts and traditions. Science must find through the clinical field and the laboratories ways of preventing chronic diseases.

The answer to the problem of providing people with periodic health examinations and supplying the basis for the management of chronic diseases is often found in the health profile screening program. In this way, health examinations can be made available to large numbers of people. Ways are being found to "mass produce" the routine elements of the health maintenance examinations. It is important to remember that health profile screening does not replace the physician and his health maintenance programs.

Technically trained people, rather than physicians, can be used to provide the mass screening examinations under medical supervision. Physicians' time is thus conserved for the complex problems of definite diagnosis. Health profile screening is not intended to replace the more desirable, unhurried physical examination by an interested physician. It is rather, a method of identifying those who most urgently need the complete physical evaluation.

Such profile screenings of total population groups are designed for apparently healthy persons. Screening, therefore, is the likely identification of unknown and unrecognized diseases or defects in individuals by tests and examinations that can be administered rapidly and easily.

The screening tests may be carried out in hospital outpatient departments, special centers or in county health department clinics. Voluntary health agencies and other community organizations have an interest in the health of the people and commonly assist with the operation of the screening programs.

We would like to emphasize that the health profile screening programs are not diagnostic, but are designed only to detect significant conditions for which people should consult their physicians for further study and final medical diagnosis. When a person is screened, he provides the name of the physician to whom the referral will be made. Only the physicians receive the results of the examinations.

Screening Programs in Florida

There are two types of screening programs carried on in the Sunshine State. One, the monophasic screening program, is aimed at detecting one disease, such as diabetes, glaucoma or cervical cancer. Voluntary organizations under close medical supervision have more or less pioneered in this field; one example is the tuberculosis x-ray campaigns carried on throughout the state for many years by the Florida Tuberculosis and Respiratory Disease Association, county health departments and the Division of Health.

The second type is the multiphasic screening program carried on by governmental health agencies in cooperation with voluntary and private health organizations and community groups to uncover through mass examinations those persons who are potential victims of chronic diseases. Both types of programs depend greatly on the integrated efforts of the voluntary agencies, the medical profession, county health departments, the Division of Health and interested private citizens.

Florida has a climate and type of environment that attracts retired persons. A distinctive characteristic of its population is the wide variation in ages in different counties. In two Florida counties, the proportion of the population over 65 years of age is 25 per cent or higher. In some retirement communities, individuals who are over 65 are considered younger people. The average age of some counties range as low as 22.6 years, while in others it is 44.9 years. In communities where there are concentrations of aged persons, there is a need for geriatric health screening programs.

In Florida, screening programs for tuberculosis, the venereal diseases, carcinoma (cancer), diabetes, glaucoma and heart disease have been conducted for some time. Tuberculosis detection through mass chest x-ray screening has been in operation since 1946. Diabetes detection started in 1947; cancer detection, using the pap smear, was begun as early as 1960; and glaucoma screening was begun in 1962.

A multiphasic screening program was started in Jefferson County in 1961 as a part of the regular service available from the county health department. A demonstration program in hypertension was begun in Holmes, Walton and Washington Counties in 1968; a



MULTIPHASIC SCREENING

— This series of photographs were taken of Mr. Jones who went through the tests in a county health department. At the start of the series of tests he turns his IBM card into the receptionist.

His vision is tested.



He drinks a cup of glucose for a blood sugar test ... (continued on page 241).

cardiovascular screening program was started in 1967 in which persons were screened for high blood pressure, abnormal electrocardiograms (EKG), excessive cholesterol and uric acid in the blood, and diabetes. These programs are available in counties where the local medical society and the health officer wish to participate.

The programs are carried out in a variety of locations — clinics, shopping centers, club houses, or community centers. Volunteers from women's clubs and other groups help with the registration of people; the actual testing is done by experienced professional technicians, nurses or physicians.

County health departments' public health nurses provide follow-up services to the screening programs and determine the status of those persons referred to their private physicians or county health department clinics. These include those persons who were treated, those who were not examined, those who did not see their physician, or those who had moved away and were unavailable.

Most patients with early and previously unknown chronic conditions could be successfully treated in physicians' offices or outpatient clinics, and the need for hospitalization for advanced stages of the diseases thereby reduced. Early identification diagnosis and treatment may cure or arrest the disease. Thus complications are prevented and suffering and disabling conditions in later life are postponed. Hence, an individual's useful life is prolonged.

Mr. Jones and Health Profile Screening

One of the major problems in the control of chronic diseases is the time lapse between the beginning of the disease and the discovery of the disease after symptoms have driven the patient to his physician.

The discovery of Mr. Jones' chronic condition in a physician's office may be postponed by:

- * the delay in appearance of symptoms which drive him to seek medical help;
- * the cost of laboratory tests which discourage their use by his physician — unless they are specifically indicated for diagnostic purposes; and the fact that his physician's time is occasionally fully occupied in taking care of the acutely ill patients.

Therefore, multiphasic screening is one means of finding that a chronic disease may be beginning and added diagnostic tests are necessary. The people of the community become the beneficiaries of the health profile screening programs. The physician also benefits by having the opportunity to start treatment before the acute clinical manifestations occur.

A mass screening for chronic disease detection is beneficial to Mr. Jones in many respects. Such programs have pointed out that three out of five adults have an unsuspected physical abnormality. Mass screening can discover that Mr. Jones may have impaired vision, glaucoma, cancer, diabetes, high blood pressure, heart disease, obesity, or anemia. Unsuspected tuberculosis and syphilis may also be detected.

The benefits of the health profile screening program are:

- * to Mr. Jones — by improving his prospect for recovery and by initiating less costly treatment at a time when his illness is not serious.
- * to his physician — by referring early cases of chronic illnesses when treatment is more effective, less expensive, and recovery more certain.
- * to the taxpayers and community — by postponing and decreasing the incidence of chronic illness before it reaches the late stages and by using wisely the supply of productive health manpower — physicians, nurses, and other medical professional persons — upon whom the health of the community depends.
- * to the public health official — by giving him a program that he can evaluate and know he is helping his community.

It should be emphasized that screening programs are not an end in themselves. Mr. Jones will be referred from the screening program to his private physician who interprets the tests' results, decides what further diagnostic examination should be done, determines the correct diagnosis, and institutes appropriate treatment — if indicated.

Detecting Diseases

Medical science has developed objective methods of testing for disease. This has led to x-rays and tuberculin testing for mass tuberculosis surveys; blood sampling for syphilis and diabetes detection; Pap smears for cervical cancer; the electroen-

A sample of blood is drawn for a variety of tests, including hemoglobin, glucose, uric acid and cholesterol.



His height is taken and he is weighed.



His temperature and pulse are also taken ... (continued on page 246).



COMMUNITY SCREENING PROGRAM — Many organizations join together to present health profile screenings to the community. In a shopping center, student nurses interview individuals who wish to be screened (left) and take blood pressures (right) . . .

cephalograph — (EEG) for epileptic seizures, and many others. Other tests which may be developed in the future for mass screening are:

- * blood tests for cancer;
- * a single skin test for allergies;
- * a practical liver function test; and
- * serological tests for early arteriosclerosis.

The value of the prevention of disease far outweighs that of treatment, be it infectious, parasitic, degenerative, or neoplastic (cancerous). This is well recognized in the field of infectious diseases. The prevention of smallpox, yellow fever, plague, cholera and others has been recognized as far superior to treatment. Vaccines have been developed for the prevention of many diseases; the control of vectors, such as mosquitos and ticks, is an example of another method of disease control.

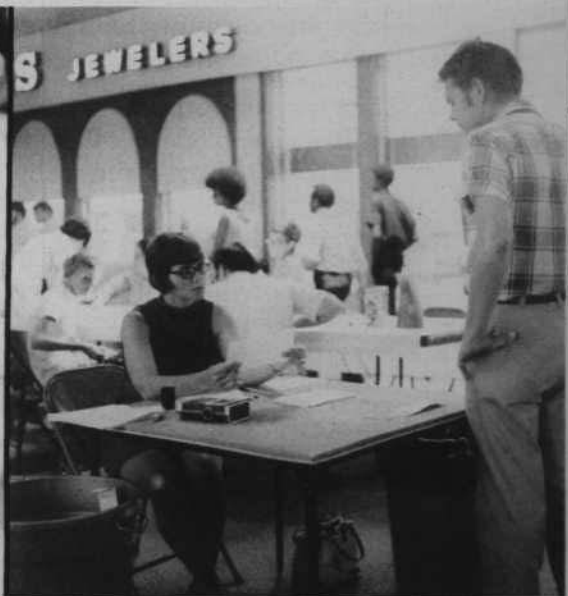
With the chronic diseases, the prevention may be even more complicated. The actual causes of atherosclerosis, glaucoma, cancer, high blood pressure, diabetes and other degenerative diseases are not always completely understood. However, enough is known to furnish a clue to the prevention or postponement of some of the acute clinical manifestations of the underlying disorder.

There are factors that increase blood clotting in a person who has advanced atherosclerosis. This increased clotting tendency may lead to the formation of a clot or thrombus which, when carried to the small arteries of the brain or heart, will produce the symptoms recognized as a stroke or heart attack. Some of the factors that may accelerate clotting under certain circumstances include cigarette smoking, elevated blood cholesterol, elevated blood uric acid, a diet high in animal fat, uncontrolled diabetes, obesity, lack of physical activity, and some inherited tendencies that are poorly understood.

In Florida, there are several monophasic screening programs in operation that have tested thousands of persons and identified hundreds who were suspected of having early stages of chronic diseases that could become disabling in the future. These programs are:

- * cancer control program, including the cervical cancer program of the county health departments;
- * diabetes program, including the distribution of insulin to medically indigent persons;
- * glaucoma detection program, which is carried on as a continuing program in several counties, and as short-term projects in others; and

... A student tests a blood specimen in an instrument (left) that will detect high blood sugars. At the end of the screening session, the results are interpreted for the individual (right). If additional diagnostic tests are indicated, he is advised to see his physician.



- * heart disease control program, which identifies those persons with high blood pressure, abnormal electrocardiograms, high blood cholesterol, high triglycerides and those persons with kidney disease as determined by a urine test.

Cancer Detection

Cancer is an unrestrained irregular growth of cells that usually develops into a tumor that compresses, invades and destroys normal body tissues. By a process called metastasis, cancer cells can travel throughout the body utilizing the circulatory and lymphatic systems as conduits for their spread.

Depending on its location in the body, cancer varies greatly in cause, symptoms, growth, response to treatment and possibility of cure. To date, more than 100 types of cancer have been classified by their location within the body and by their appearance under the microscope.

Cancer is the second leading cause of death in Florida and in the United States, second only to heart disease. An estimated 13,600 persons died of cancer in Florida during 1970, an increase of 9.4 per cent over the preceeding year, continuing a trend of increased cancer deaths each year for the past 11 years.

Cancer is the second leading cause of death among children ages one to 14. A program supported by the Florida Regional Medical Program and devoted to children's cancer has been initiated recently in Florida. Special treatment centers are being set up in major hospitals throughout the state to specialize in the diagnosis and treatment of childhood cancer.

It is very important that cancer be recognized in the early stages before it can spread to other parts of the body. In the early stage, cancer can be removed surgically and the person is considered cured. Other treatment, such as drugs and radiation therapy can also be used in combination with surgery to insure complete cure.

Because of the importance of early detection, health screening is a valuable aid in the prevention of cancer deaths. Some cancers are not amenable to diagnosis by screening techniques, and are only identified after the person's death. Fortunately, however, this is not true of most types.

One common cancer in women which can be detected easily by a simple screening technique is cancer of the cervix (uterine cancer). The pap smear — named after its originator, Dr. Papanicolaou — is a painless test in which cells from the cervix are examined under a microscope to see if cancer cells are present. The death rate from this type of cancer has been reduced greatly, but still many women die of uterine cancer each year because they fail to protect themselves by getting a yearly pap test.

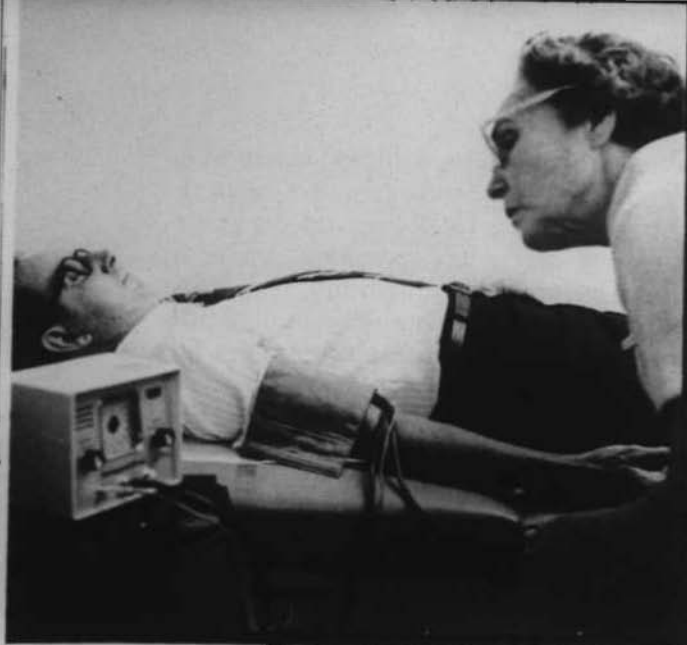
The Division of Health, in cooperation with the American Cancer Society, Florida Division, Inc., the county health departments and other agencies, conducts a large cervical cytology screening program in 57 Florida counties. Free pap smears are given to any medically indigent female by the local county health department, and the slides are processed by a member of the Florida Society of Pathologists, whose members contribute their services at cost to this most worthwhile program. Over 52,000 females were screened in 1970 by this program, and yielded many new cases of proven cancer.

Cancer of the female breast is another type of cancer which demands early diagnosis and treatment. This type of cancer kills many thousands of women each year and usually can be discovered by careful examination of the breasts, by a physician or by the woman herself.

Some types of lung cancer can be detected by a chest x-ray in time for removal of the diseased lung portion. Lung cancer is increasing at an alarming rate among both men and women and accounts for many thousands of deaths each year. Many of these deaths are attributed to cigarette smoking and are, therefore, unnecessary and preventable. Smoking is also linked to other cancers including cancer of the kidney, mouth and larynx.

Tumor programs (clinics) are operated in many hospitals throughout the state and are supported by the local hospital, the private physician, the Division of Health, the American Cancer Society, Florida Division, Inc., and many other interested groups. Many services are provided cancer patients including diagnosis, treatment, and rehabilitation.

It is important that all persons seek periodic medical examinations to detect the presence of any chronic disease. Early



Mr. Jones has his blood pressure taken. His vital capacity is measured for chronic obstructive pulmonary diseases.



His eyes are tested for glaucoma ... (continued on page 251).



diagnosis and treatment of these conditions is the only way to insure a healthy and productive life.

Diabetes Screening

Diabetes is a metabolic disorder associated with the inadequate handling of carbohydrates and fats by the body due to an apparent lack of effective insulin. This may be the results of insufficient or ineffective insulin being produced by the Isles of Langerhans of the pancreas. Insulin helps our bodies to use properly (or burn) the glucose (sugar) in our blood. Glucose is the principle source of quick energy for our bodies.

Early indicators of diabetes may be hypoglycemia (deficiency of sugar in the blood), polyurea (excessive urination), or hyperglycemia (acidosis) — excess amounts of blood carbohydrates. When glucose is not burned adequately, the body begins to burn fats which causes acids to form and the individual may go into a coma. Late complications of the disease are diabetic retinopathy (a disease of the eye), nephropathy (a disease of the small arteries of the kidney), neuropathy (nerve disorders), gangrene and heart attacks.

When diabetes is recognized and treatment started early, many of the complications may be prevented or at least delayed. Both heart attacks and strokes occur more frequently among uncontrolled diabetics than among those persons whose disease is adequately controlled by treatment. Diabetes is often discovered after eye damage or kidney disease has advanced or after a heart attack or stroke. Irreparable damage has occurred by this time.

Early recognition of diabetes and effective therapy maintained by the patient allows a diabetic to live a relatively normal life and avoid serious complications.

The Division of Health has been involved in diabetes casefinding for 24 years. The disease ranks as the eighth leading cause of death in Florida and some 1,300 deaths were recorded in 1970. However, the disease is a large contributing factor in many cardiovascular deaths.

Casefinding and education of diabetics are two of the three major parts of the Division of Health's Diabetic Program. Individuals may be screened in the offices of private physicians, community diabetes screening programs, the screening of relatives of diabetics, or on-going countywide health profile screening programs.

Diabetic surveys were conducted by 53 county health departments and voluntary organizations in 1970 and screened over 50,000 persons. Of these, 943 persons, or 1.9 per cent, were referred to their physician for diagnosis and/or treatment.

Flexible monophasic or multiphasic screening programs for diabetes and/or other chronic conditions may be held in shopping centers, at county fairs, health fairs, or various other places where people gather. Programs of this type are especially popular and useful as they can screen rapidly many individuals who do not visit their physicians routinely for physical examinations.

As a result of the third major part of the Diabetes Program, the Division of Health, in conjunction with the county health departments, distributed insulin to some 2,000 indigent diabetics during 1970. However, the program was limited by the lack of adequate funds and an increase in the cost of insulin. This has made it necessary to cut the number of patients being given assistance. Progressively higher insulin prices have and will continue to necessitate further restrictions of the number of patients who may receive assistance under this program.

Local insulin registries are a great assistance in follow-up, for relative casefinding and as a source of reliable data for the evaluation and determination of future community needs.

Cardiovascular Screening

The various diseases of the heart are the most important killers in Florida. Together they are the leading causes of death, claiming some 35,000 lives in 1970. For persons under 65 years of age, heart diseases had a death rate of 122.5 per 100,000 individuals; while in people over 65, the death rate was 2533.6 per 100,000. The diseases include congenital heart disease, rheumatic heart disease, atherosclerotic-cardiovascular-renal disease and hypertension.

The cardiovascular screening programs which are carried on in many counties in Florida have many ramifications. Electrocardiograms, blood pressure and blood specimens are taken. The blood samples are put through a wide variety of tests, including hemoglobin, glucose, uric acid, urea nitrogen, cholesterol and triglycerides.

One of the conditions that may be prevented by the screening programs is stroke. This is the sudden loss of some part of the nervous system due to the sudden blocking of an artery or by the rupture of an artery-producing hematoma (local swelling of a tumor with blood). This can destroy a portion of the brain. The obstructive type of stroke may be caused by a diseased wall of an artery at the site of obstruction, or from an embolus (blood clot or air bubble) in the heart or wall of the blood vessel between the heart and brain.

High blood pressure and factors that accelerate blood clotting tend to increase the chance of a stroke as do positive family history, diabetes and hypercholestermia. This is frequently seen in people with gout, and/or high blood pressure. For this reason, screening for stroke is done by testing the blood for hypercholesteremia, uric acid and for high blood pressure. These are conditions that usually can be treated satisfactorily if discovered before the stroke occurs. The history of transient ischemic attacks, (TIA) can be obtained in the patients' history and are most important in the prediction of a stroke. The nerve tissue destroyed by the stroke can never be replaced.

Hypertension (high blood pressure) is considered a contributing factor to stroke. It is the result of the disorder of a number of regulatory mechanisms. High blood pressure is associated with an increased incidence of stroke, heart attacks, congestive heart failure, kidney disease, and a special type of brain disease called "hypertensive encephalopathy."

While the exact causes of many types of hypertension are not well understood, most cases respond to treatment that is available today. Most important of all, it has been shown that regardless of the cause of hypertension, the acute clinical complications can be prevented by adequate treatment under the supervision of a physician.

The disease is frequently hereditary and children of hypertensive parents should have their blood pressures measured at regular intervals. The secret to the prevention of the clinical complications of high blood pressure is early detection and adequate treatment.

Gout, another disease linked with stroke, is caused by the accumulation of uric acid or its sodium salt in the tissues of the body. When the uratic crystals begin to be absorbed by the white

blood cells, a chemical is produced which causes extremely painful swelling of the surrounding tissues. Frequently, this is found in the feet.

Statistically, high blood uric acid has been associated with an increased incidence of stroke. For this reason, it is desirable to know one's uric acid level and to take appropriate treatment under the supervision of a physician.

High blood cholesterol has been shown to precede a number of complications, such as heart attacks, strokes, and diseases of the arteries, tendons and skin. Several types of disease (hypercholesterolemia) have been recognized. There appears to be an inherited tendency to develop these disorders. Once an elevated blood cholesterol has been detected, the individual's physician has the opportunity of determining the type of disorder and of instituting the proper treatment program before the serious complications can occur.

In many cases the person with high blood cholesterol has no symptoms to drive him to the physician and it becomes necessary to offer a free screening service. Once the disorder has been recognized, and the person has been acquainted with the complications, he is more likely to make the necessary sacrifices to obtain treatment.

The triglycerides are a type of fat normally found in the blood. When the body chemistry is altered in such a way that the material is not utilized adequately, the material begins to accumulate in the blood stream. Heart attacks, stroke, and diseases of the lining of the arteries become more prevalent. Here, as in the case of high blood cholesterol, the person has no symptoms to warn him of the condition. Unless it is discovered accidentally or through a screening service, his physician is not given the opportunity of diagnosing the type of disorder, or of starting a treatment program.

The prevention of heart attack and stroke is being approached through the establishment of screening centers under the direction of the county health departments. Many of the centers are staffed by volunteer workers. Others are staffed by nurses employed specifically for this purpose. Some 11,000 persons were screened in 21 cardiovascular screening programs in 1970. Several other county health departments are making preparations to start screening programs.



Mr. Jones is given an electro-
cardiogram, . . .

His hearing is tested with an
audiometer, and . . .



he is given a chest X-ray . . .
(continued on page 254).

The person is admitted to the cardiovascular screening service by appointment. A brief but complete medical history is recorded, an electrocardiogram tracing is made, and blood for a lipid profile is drawn and sent to the Division of Health's Central Laboratory for analysis. The report of the screening test is sent to the individual's physician. Such screening programs are initiated only with the participation and cooperations of the county medical societies.

Some local medical societies request that the records of all patients screened be sent to the physicians. They feel that the negative results are as valuable to their patient's files as are the positive results. Other societies prefer to have the information sent to their offices in only the positive cases.

Tuberculosis and Venereal Disease

As previously stated, the Division of Health for years has been carrying on screening programs for tuberculosis and syphilis. These mass screening have been successful because:

- * the tests were specific and relatively simple;
- * for syphilis there was a specific remedy; for tuberculosis, adequate facilities for treatment;
- * there was community acceptance and recognition of the authority of public health officials in the communicable disease field.

Tuberculosis was one of the earliest detection programs and one that has been immensely successful. This program, by offering free chest x-rays, detected early disease and allowed physicians to initiate treatment before a large part of the lung tissue had been destroyed and made recovery impossible. In the case of tuberculosis, the early treatment also had the advantage of preventing the spread of infection.

In 1970, the Division of Health, county health departments, and tuberculosis and respiratory disease associations made some 900,000 x-ray films; and over 1,500 new cases were detected. There were 172 deaths from tuberculosis during the past year.

Venereal diseases were the first objective of a screening program in Florida during World War I. In 1938, the venereal disease control program became a part of the old State Board of Health and during the days of World War II and the Selective Service, Florida had the dubious distinction of having the highest venereal disease rate in the nation.

Penicillin in 1946 and casefinding (interviewing for sexual partners) brought a decline in the number of cases. However, an upward trend of infectious syphilis was noted by the Division of Health in mid-1970, and gonorrhea, the No. 2 venereal disease, had reached epidemic proportions. This may be due, in part, to a change in moral standards, public apathy about venereal disease, and promiscuity. However, the most important single factor seems to be the lack of factual information on the part of the general population.

Florida's public health laboratories examined some 800,000 serology specimens for syphilis in 1970 and found that 29,540 were positive. Over 87,300 gonorrhea smears were examined and 56,500 were positive. The venereal disease screening program is for detecting the disease and is only one part of the entire control program.

Health Profile Screening - And You

You may enjoy good health now. But will that good health continue? What are you doing to maintain the good health you have? It needs to be preserved. This can be done by:

- * eating the correct amounts of the right kinds of food;
- * getting the proper amount of exercise every day (if necessary, obtain your doctor's advice);
- * acquiring the necessary amount of rest your body needs;
- * no smoking;
- * keeping your body at the desired weight;
- * having productive activity — for the body, mind and spirit; and
- * having a periodic physical checkup.

At the beginning of this issue of *Florida Health Notes*, we said that on an average, every person over 25 years of age has 1.5 chronic diseases. This means that you may have a health condition that could lead to complications later in life.

However, you'll agree that a person is better off by taking care of himself — through preventive measures — than waiting until a condition, such as diabetes, glaucoma or heart disease, could complicate his life.

To find out how you stand in regards to your health, you should have a periodic health examination by your physician or at least

participate in a health profile screening program. Such screenings are not diagnostic but are designed to detect any significant conditions that may affect your future health. Your health is your responsibility.

You can do much to maintain good health. One way is by cooperating with your family physician, your county health department, and the Division of Health to keep you and your community healthy.

We squander health, in search of wealth
We scheme and toil and save;
Then squander wealth, in search of health
And all we get's a grave.
We live and boast of what we own
We die, and only get a stone! Anon.



At the end of the screening series and when the results of the tests are completed, Mr. Jones discusses his health status with the physician. If necessary, additional diagnostic tests are made.

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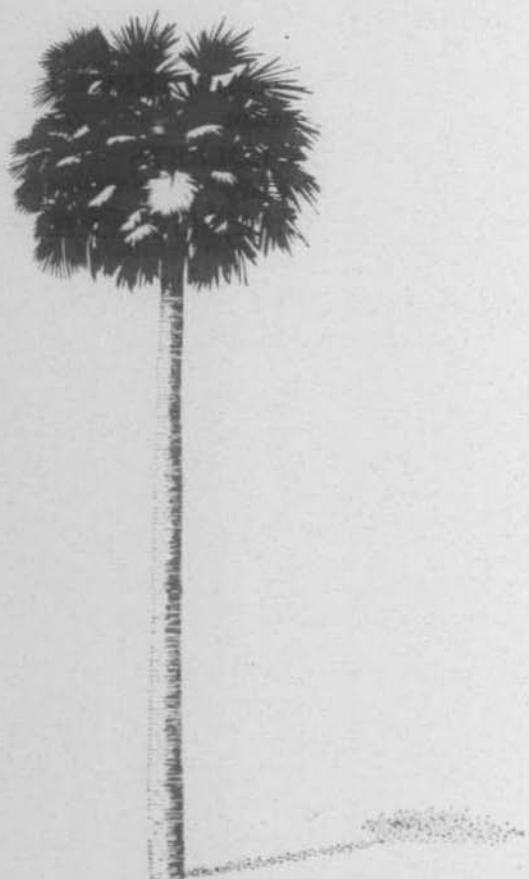
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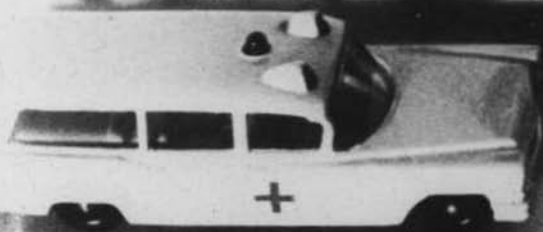
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of the
Florida Department of Health and
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FLORIDA HEALTH NOTES



VOLUME 63 — NO. 10

OCTOBER 1971

*Emergency
Medical Services*

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THE EMT (Cover photo) — Ambulance attendants are entitled to wear the Emergency Medical Technician's shoulder patch after they have completed the EMT course given at Florida's community and junior colleges, hospitals and educational institutions, and passed the examination.

FLYING AMBULANCE — Motor accident victims are removed from a helicopter ambulance following a flight over traffic-clogged highways. The flying ambulance also can transfer patients from hospitals to major medical treatment centers.



MEDICAL SERVICES

EMERGENCIES!

"My husband just stopped breathing . . . I don't know what to do!"

"My wife dropped a bottle on her foot . . . There's blood all over . . . She's bleeding!"

Signal 4 - 53 — Dade Boulevard and Alton Road!" (Emergency signals for vehicle accident with people injured.)

People frequently need help and emergency teams are accustomed to receiving such calls after an emergency occurs. Emergencies can occur at any place, any time, to any one.

But there are more significant facts. In Florida today, the four leading causes of death are heart disease, stroke, cancer and accidents. Of these, the number of heart disease and accident deaths could be significantly reduced if emergency treatment and transportation by trained emergency medical personnel were always available.

Public health officials, charged with the responsibility of protecting the public's health recognize that emergencies are the initial phase — and often the most critical phase — of the medical care sequence. The medical profession has acknowledged that it has a responsibility. Local governments are beginning to supply emergency medical services through one of their public safety agencies — such as the police or fire department — or adequate funding of private ambulance services.

The men who serve the people of Florida on rescue squads, emergency medical service teams, ambulances — call them what you wish — are always ready, always available to help a person involved in an emergency. It may be a heart attack, a vehicle accident, a fall, an attack by another person — anything that could lead to illness or death.

Public health officials say that annually some 300,000 persons in Florida are picked up by ambulances and carried to hospitals' emergency departments. Mr. and Mrs. Floridian rarely feel that they are involved when the emergency vehicle goes by. It is carrying someone else. When they hear a siren of an ambulance, they pause — annoyed at the inconvenience or disturbance, stare as the vehicle passes, and continue on their way. Only when they are involved in the emergency are they concerned about the quality of medical care. The uniqueness of emergency medical care is that they must accept the quality of care the community offers.

Vehicle accidents took the lives of 2,170 persons in Florida during 1970. Over 137,000 persons were injured in motor accidents. Some 39,000 persons died of heart disease. Sixty-five per cent of all heart attack deaths occurred within the first hour. The Florida Heart Association has estimated that 12,000 Floridians could have been saved if cardiopulmonary resuscitation was applied in time. Untold millions of dollars were lost to the productivity of Florida because of the injuries and deaths. But many hundreds more were saved because of the work of quality emergency medical service programs. If the services were improved in many areas of the state, hundreds of other persons might have been saved.

FLORIDA HEALTH NOTES

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260 — FLORIDA HEALTH NOTES



ROOF-TOP RESCUE — A Jacksonville rescue team and firemen remove a heat-stroke victim from the top of a house. People frequently must be removed carefully from such places to avoid shock.

This issue of **Florida Health Notes** will tell you about the emergency medical services; of the outstanding work of emergency ambulance rescue squads in several Florida cities; of the role of the Division of Health of the Department of Health and Rehabilitative Services in the certification of ambulances and ambulance attendants; of the efforts of the medical profession and public health officials to improve the services; and of the needs for the Sunshine State to provide its citizens with adequate emergency medical services — 24 hours a day, every day of the year.

Scandals of the Past

Since the beginning of history, men have fought wars. But it has been only within the past few centuries that medical and surgical knowledge were available to soldiers and even then assistance did not reach the wounded until the day after the battle — or even later — when the fighting was over. During the Middle Ages, a temporary and simply-equipped hospital accompanied an army into the field but medical help was still slow in reaching the soldiers. Napoleon's surgeon-in-chief, in the late 18th Century, devised the "flying" field hospital that gave primary and surgical treatment and removed the wounded quickly from the sphere of conflict while the battle was still raging.

Horse drawn vehicles were used to move the sick and wounded. During the Civil War, a Union Medical Corps officer, Major Jonathan Letterman, introduced a system of evacuating the wounded that was highly successful. The Geneva Convention of 1864 declared that ambulances and their attendants were neutral in time of war. Motorized ambulances first operated during World War I and they became famous for their heroic activities in evacuating the wounded.

ON THE SCENE — An ambulance arrives at the site of a motor accident. This type of emergency is the most common in the state, but heart attacks account for 20 per cent of emergency calls in some Florida cities.



However, little is known as to how effective these ambulance services were. Few studies have been done over the years and until recently the picture was incomplete. Today, more information is available

- * about emergency care in cities — than in rural areas;
- * about services in hospitals — than during the prehospital phase of the emergency; and
- * about those who were admitted to the hospital or who died — than those who received only minor injuries.

Ambulances had their beginning in the military, but soon came a need for the transportation of the ill and injured civilians to community hospitals. Most of the services were started by undertakers. This was

- * because of their genuine public spirit; and
- * because they were usually the first to have vehicles that could carry horizontal patients.

The cost of providing the services, the minimum wage law, and paper work added by Medicare have caused many funeral homes to go out of the business. Even the best services of this type could provide little more than transportation. The cost of providing true emergency medical care was prohibitive.

What is Emergency Medical Care?

Emergency medical care differs from the usual ambulance service in that the latter only provides transportation to the hospital with a minimum of first aid. Emergency medical care is the providing of medical care to the sick or injured by a team of highly trained paramedics — at the scene of the emergency and enroute to the hospital. For years, transportation was thought to be the only thing that ambulance services provided. The hospital was intended to be the place for the treating of the sick and injured.

Many prominent heart specialists began to realize that individuals who had been stricken with a heart attack might have been saved



EKG CHECK — A Miami Beach fire department rescue team runs a test on the electrocardiogram installed in the rescue vehicle. The instrument is used to monitor the heart beat of patients with cardiac arrest (heart attack) while the ambulance is enroute to the hospital.

services that existed — any service was better than none. However, people today are not willing to accept ambulance attendants who have had only the standard first aid course; nor are they willing to have the simple vehicle that merely carries them to the hospital.

The specially-equipped ambulances that are in operation in Miami and Jacksonville, and being installed in Orlando, have proven that patients who have heart attacks can be saved if trained help arrives in time, and care provided within a few minutes after the attack occurs.

In one six-month period, the Jacksonville Fire Department Rescue Squads handled 508 cases with cardiac symptoms. Of these,

if life-saving techniques had been applied within a short time after the attack occurred. The medical profession began to realize the responsibility it had in seeing that the condition of the patients who had a serious illness or injury did not deteriorate unnecessarily between the time the emergency began and the time the patient was seen by the physician.

Once, simple first aid was all that was considered necessary. Now highly trained, calm, resourceful and motivated attendants are taught the latest knowledge and skills about emergency care. They are taught how to recognize symptoms, the techniques of resuscitation, closed-chest heart massage, the use of the electrocardiogram — that records the heart beats; and the defibrillator — that shocks the heart back to a normal rhythm.

Equipment has become available that permits communication between the ambulance and hospital and the transmission of the patient's heart beat by radio. This is called a "telemetry system." On the advice of physicians who are monitoring the patient by this method, limited emergency treatment is given by the ambulance attendants.

For Compassion or Profit

What is the present status of the emergency medical services in Florida? In the past, people were willing to accept the ambulance



THE EMERGENCY MEDICAL TEAM — The emergency vehicle and its men are always ready. Continuous training enables the team to respond quickly, evaluate the injuries, and give emergency medical care.

88 needed cardiopulmonary resuscitation. Only 11 persons were dead when they reached the hospital; some of these were past the point of help when the emergency vehicle reached them. Approximately 20 percent of the emergencies in Miami and Miami Beach involve heart attacks.

According to a county-by-county survey made by the Division of Health, the emergency medical services in Florida are provided by six hospital-operated services, 39 volunteer ambulance or fire companies, 47 government agencies, 74 private ambulance companies, and 108 funeral homes.

Public health officials know that most ambulance services are operated at a loss and must be subsidized in one way or another:

- * by government through subsidies to private companies or support of fire, police or sheriff's departments; or
- * by volunteers who solicit funds from the community.

In large communities, commercial ambulance companies may be subsidized or they may operate under a franchise by a governmental body — a city council or county commissioners. In the rural areas, the commercial ambulance companies are usually operated as part of another business. If a government-financed and operated service and private companies and/or funeral homes operate in the same area, the governmental service usually handles only the emergencies. The day-to-day transportation of sick patients from hospital to hospital, to nursing homes or residences is carried on by the private ambulances.

Florida lacks a state-wide system of emergency medical services that provide the citizens with quality service. The current law — Chapter 877.07 of Florida Statutes — gives the Division of Health the authority to certify ambulance services for operation in the state; and issue certificates to ambulance attendants when they have completed a first aid course. The law does not require the ambulance to have more than one man. It requires only a minimum of equipment.

But some cities in Florida are providing emergency medical services far above that required by law. Jacksonville and Miami have

received national and world recognition for the work of their ambulance personnel. Orlando, Tampa and Miami have franchised private ambulance companies that provide quality services for their citizens.

Emergency Care in Urban Areas

Seventy-five per cent, or 4.7 million, of Florida's population live in 12 counties. As far as emergency medical services are concerned, these areas usually are better covered than the rural counties. In some cities and counties, the service is provided by government-operated emergency vehicles or franchised, private companies. In other counties, there are several private ambulance companies and funeral homes competing for the business.

In granting a subsidy to a private company, the local governmental body frequently gives enough money to maintain a low level of service but not enough to improve it. If a contract is granted, it should spell out the quality of care the community needs and that which the ambulance company should give.

Florida cities have several factors that enter into the emergency medical care picture. Major highways, thousands of college students and servicemen, and some 23 million tourists affect the response time and the type and frequency of emergency calls.



HOME-AWAY-FROM-HOME — Ambulance attendants, stationed at a hospital, relax in their quarters where they study, watch television, or nap — but they are always ready for that emergency call.

TIME TO ROLL — The telephone rings. As soon as the ambulance attendants know where the emergency is located, they head for their vehicle.



Ambulance response time is low in urban areas (usually three or four minutes); in out-lying areas of the urban counties, the response time may be much longer.

During the season, December to March, the nine square miles that is Miami Beach are so congested with the 90,000 permanent residents plus the 150,000 visitors that rescue squads have difficulty at times in responding to calls.

A large retired population segment creates a high cardiac incidence rate and in some areas of the cities, especially low income areas, the number of calls far outnumbers other urban areas. In Miami Beach, for example, the district south of Lincoln Road, with its older hotels and more senior citizens, account for 50 per cent of the calls to the Miami Beach Fire Department's rescue squads. The central part of Jacksonville, where there are rooming houses and low-income areas, account for a major portion of emergency calls in that city.

Emergency Care — Rural Areas

A farmer who is plowing a field suddenly has a heart attack. He manages to get to his house, an ambulance is called from a funeral

home in a nearby town, but the attendants have had no training in cardiac care. The treatment, if it could have been given in the first few minutes following the attack, may have been enough to save his life.

During a foggy morning, a car slows down on an interstate highway in rural Hamilton County. Another car runs into it; a third vehicle, traveling at a high rate of speed, crashes into the first two. These are followed by a dozen more within a few minutes. A number of people are injured. Some are killed. Several minutes pass before the Florida Highway Patrol can arrive on the scene. Ambulances from nearby towns are enroute in minutes. The Highway Patrol officers give first aid to the best of their ability. People are bandaged but some people lose large amounts of blood and the time needed in getting them to the emergency departments of local hospitals is important.

Problems of emergency medical services plague rural counties even more than the cities. And the problems are so varied that information about one county may be limited in its application to another. Subsidization in these areas would have to be extensive.

Many persons who are involved in emergencies in rural areas are non-residents. Many accidents involving such persons occur between midnight and 6 o'clock in the morning. These are usually due to sleepy or fatigued drivers who have been driving long distances. The emergencies present special problems for rural emergency facilities because the addition of several injured persons may strain the facilities of the local, small hospital and physicians may not be readily available.

The emergency medical services in the rural area may be operated as part of another business, such as a funeral home or garage, or operated by volunteers who may have very little opportunity for training. A couple of emergency services in Florida's smaller counties are based in and operated by local hospitals.

Hospital-based ambulances have several advantages.

- * They allow for the efficient and productive use of the time and skills of the men between infrequent emergencies.



HEART BEAT — An instrument, called a telemeter, can broadcast by radio frequency the heart beat of a patient who has had a cardiac arrest. The signal is monitored in the emergency department or cardiac care unit of a near-by hospital.

- * The hospital facilities and staff can give valuable training and on the job experience to the ambulance crews.
- * The crews, by working in the hospital, can develop a working relationship with the hospital staff.
- * Since the hospital is the base of operation for the ambulance crew, a two-way radio can give direct communication between the vehicle and the emergency department.

While the distance and the low number of emergencies in the rural areas can make ambulance service unprofitable, the men who staff the service can receive the same type of training as their counterparts in the urban areas.

Get Those People Out of Here!

Two vehicles collide at a busy intersection. People are injured. Traffic immediately backs up. Crowds gather. The emergency squad arrives and administers medical care to the injured.

Mindful of their duties to get traffic flowing again, the over-worked police may insist on the emergency squad's "getting those people out of here."

Many people equate the survival of traffic victims with rapidity of transfer to the hospital. But survival often depends on the quality of care, rapidity with its application — not the speed of the transfer. Far more important than the speedy removal of the injured and their transfer to the hospital, is the deliberate evaluation of the patients' condition, and the careful, competent application of appropriate treatment.

The patient should be examined carefully. If there are fractures and possible injuries, the condition of the patient should be stabilized at the site of the accident with splints or other devices, and the patient made as comfortable as possible. The patient should be assured by word and action that he is in competent hands and that he will be given the best possible treatment.

RECORDING THE HEART BEAT — In the intensive care unit of a hospital, a physician checks the chart of an electrocardiogram that is recording the heart beat of a patient miles away in an ambulance. If necessary, the physician, through radio communication, can advise the ambulance attendants on the emergency medical care for the patient.



The severe pain from unnecessarily transferring the patient to a stretcher before he is treated could send him into shock. Emergency medical service personnel are trained to stop the bleeding and bandage the injuries before the patient is removed from the wrecked vehicle. If necessary, the car is removed from around the patient piece by piece until the victim can be lifted free.

If the patient is a cardiac attack victim and the emergency vehicle is equipped with a portable telemeter and the men are trained to use it, the instrument is attached, and a report is made to the physician monitoring the central unit. This may be located in the emergency department, cardiac care unit, or intensive care unit of the hospital. If necessary, closed chest massage is given, the proper drugs administered; and the defibrillator used at the direction of the physician.

The Run to the Hospital

The emergency vehicle, if properly equipped, is an extension of the hospital's emergency department. No longer are flashing lights, sirens and speed the major attributes of ambulances.

A few emergency services in the state use vehicles that meet the requirements of the National Academy of Science-National Research Council. Many of the emergency vehicles are not adequate to do the job. Although many station wagons are used, they do not have enough room to give quality emergency medical care. They are only good for transportation. Many sedan-type ambulances, with a build-up roof, are used but they are expensive. Jacksonville Fire Department's emergency vehicles are of a special design, containing a box-like room on a pick-up truck chassis. The vehicles, with their equipment, meet or surpass all published standards of emergency vehicles.

Orlando has the state's only privately-owned helicopter ambulance that covers the rural areas of the county. It is used to transport accident victims from the scene of the emergency to the hospital, to assist in the finding of drowned persons in the many lakes of Orlando, to chase bank robbers, and to coordinate fire fighting.

During the emergency following an explosion at a chemical plant in South Georgia, U.S. Navy helicopters, working with the Jacksonville Fire Department, transferred patients from the scene of the

accident to a small hospital, and then to the Duval Medical Center in Jacksonville.

There has been much discussion over the use of helicopters in emergency medical services. Frequently the conventional well-equipped surface vehicle can handle victims of motor accidents or heart attacks without any difficulty. But where the surface ambulance must negotiate long distances of heavy traffic, the helicopter may be an ideal substitute. In addition, helicopters can transfer patients who have been treated at one hospital to a major hospital for further treatment. Before a community undertakes the use of the helicopter, it should first improve the quality of its land ambulance system.

According to the standards set by the American College of Surgeons, the equipment in ambulances should include inhalators, resuscitators, aspirators and other modern oxygen equipment, rolling and utility stretchers, backboards, first aid kits, splints, restraints and first aid material. In order to operate in Florida, the ambulances must meet the basic requirements of the Florida law, but the more progressive emergency medical services maintain nearly-complete mobile emergency units.

Training for Emergencies

Medical literature indicates that 18 per cent of all those who die as the result of accidental injuries do so because of inadequate emergency medical care. Military experience with an effective emergency medical system have reduced the number of battle casualties; and the military services put a great emphasis on the training of their medical corps.

According to Florida law, beauticians and barbers, who only work with the hair and external features of the body, must have many months of training and experience before they are licensed to work.

On the other hand, men who staff the ambulances of the state,

- * who may attend to your injuries following a vehicle accident;
- * who may be required to splint broken legs or arms, bandage wounds or extract you from a vehicle; or

* who may give assistance in a heart attack, are only required to have a simple first aid course.

Needless to say — hundreds of ambulance attendants are not trained in the treatment of cardiac patients. This is when a couple of minutes may mean life and death. A head nurse in the emergency department of Mount Sinai Hospital, Miami Beach, noted that there were fewer patients arriving DOA (dead on arrival) since the skilled ambulance teams went into operation. It should be noted that many ambulance attendants receive high levels of training.

The Division of Health is trying to do something about the situation. With the assistance of the State Department of Education, the Florida Hospital Association, the Florida Ambulance Association, and members of the Florida Medical Association, it has promoted the training of ambulance attendants through the Emergency Medical Technicians' courses at community and junior colleges, hospitals, and other educational institutions throughout the state.

The curriculum of 90 hours of training has been approved by the American Academy of Orthopedic Surgeons and the National Highway Traffic Safety Association. The course includes classes taught by physicians, nurses and medical specialists, plus practice sessions to give the students practical experience.



IN THE EMERGENCY DEPARTMENT — Emergency medical technicians, in some Florida hospitals, assist the physicians and nurses with continued emergency medical care of the patient.

AN EXTRA HAND — Ambulance attendants, who are stationed in the hospital's emergency department, make themselves useful in many ways once the patient has been sent to another department or discharged from the hospital.



Instruction in the Emergency Medical Technicians' course includes

- * a study of the anatomy of the body, recognition of such life-threatening problems as pulmonary diseases, cardiac arrest and bleeding and shock;
- * application of life saving equipment, closed chest massage, acute medical problems; emergency obstetrics and care of infants;
- * care of injuries of the eye, body cavity and genitals;
- * treatment of wounds and burns caused by heat, electricity and radiation;
- * a study of fractures, dislocations of bones and pelvis, spinal fractures and head injuries;
- * extraction and movement of patients;
- * methods of lifting and carrying of patients, use of litters and stretchers; and
- * practice sessions in dressing and bandaging of patients.

When the men have completed their training, they are registered in the Division of Health's State Registry of Emergency Medical Technicians.

In some Florida cities, the ambulance attendants are given additional training in cardiac care, obstetrics and other emergencies. Jacksonville is giving its men on the emergency vehicles a course that includes a 20-hour review of the American Red Cross advance First Aid course; 40 hours of advanced lectures by physicians on emergency care; 15 hours of extrication of injured from all types of vehicles; 30 hours of cardiac care training; and 650 hours of in-hospital training.

The men who operate the emergency vehicles of Miami, Miami Beach and Orlando, also receive training above the level of emergency medical technicians under the direction of interested physicians in local hospitals.

The training includes instruction by cardiologists, practical experience in the emergency and cardiac care units of the hospital and special medical training. While the emergency medical technicians are not as skilled as physicians and nurses, they are trained to recognize and act in cases of emergencies.

Communications in Emergencies

What do you do if you call for help and no one answers? What happens if you have an accident on a lonely road at night?

The communication system currently in operation is one of the weakest links in the emergency medical services of the state. Many ambulance companies are still dependent on dial telephones to receive and to make outside calls. Some have radio communication with their vehicles — but this is not enough.

Adequate communication between the public, central dispatching office, the emergency vehicle, hospital emergency department, and the police is important. A communication system should be devised in every area of the state so that emergency vehicles, police, fire departments, Highway Patrol, sheriffs' departments, Civil Defense, and all agencies concerned with emergencies could have the same frequency available. As the situation is now, many of the agencies have their own radio frequencies and there is no way to "cross communicate."

The public needs and deserves a simple means of obtaining help during emergencies. Some Florida cities have a single telephone

SIGNALS 4 - 53 — An ambulance dispatcher sends this message to an emergency vehicle enroute to the scene of an accident. Radio communication between the public, dispatcher, emergency vehicle, and hospital is lacking in many areas of the state.



number for citizens to call to obtain ambulance services. Some cities are installing the 911 number system that will give direct telephone service to a central control office. The people of one Northern city have a choice of some 45 services listed in the yellow pages of the telephone directory. In most cities, a call to the telephone operator will get help. There have been recommendations that pay or toll telephones be altered so that emergency calls can be made free of charge. If an accident occurs on a lonely road and the only telephone available is a pay phone, it would be sad if a person dies because a dime was not available to make an emergency call.

Some cities have special reporting systems for emergencies. Jacksonville has replaced its old-fashioned fire alarm boxes in the urban areas with telephones that are connected directly to a central control panel in the Fire Control Center. A map gives the location of each telephone.

Communication by radio from the dispatcher to the emergency vehicles is fairly common in most communities. However, a radio link between the emergency vehicle and the hospital is equally important. The dispatcher may be able to inform the hospital's emergency department of the type of emergency the vehicle is bringing in — obstetrical, heart attack. But with direct radio communication, the attendants — who are taught to observe the vital signs of the patient and interpret them — can inform the physician of



FIRST AID STATION — Emergency medical services at Walt Disney World's vacation kingdom are available for guests at first aid stations. This one near the Victorian Pavilion is shown under construction. Towering over the employees' entrance to the first aid station (below) are the turrets of Cinderella's Castle and the dome of the Crystal Palace.

the condition of the patient, of the symptoms he is showing, and in turn, be advised of drugs or treatment that they should administer. The physician may be miles away at the hospital, but direct radio communication can put him in charge of the treatment.

The helicopter service in Orlando frequently has to answer emergency calls at night. Sometimes the approach to an emergency scene is hampered with trees, utility poles and wires. If the helicopter pilot has direct radio communication with police officers on the ground, the landing is made easier and safer.



Emergency Care in Vacation Kingdom

How do you plan for emergencies when you have a business that employs some 7,000 workers and attracts between 25,000 and 50,000 persons every day?

The people who are operating Walt Disney World have planned for emergencies. From the years of experience in the operation of Disneyland in California, they found that their guests had few emergencies. But the heat and humidity of Florida's climate are factors to be considered.

Disney World has three first aid stations strategically located in the Vacation Kingdom. The central first aid station, located in the Victorian Pavilion, will have treatment rooms and a 36-bed ward for the guests. There will be a separate five-bed ward and treatment rooms for employees. A second first aid station, with six beds, is located at the main entrance complex; a third station is located in Fantasyland. Nurses from these stations can be on the scene of an emergency within two minutes, responding with a medical bag, portable oxygen equipment, and, if necessary, a stretcher.

Guests will be given first aid and recommendations may be made that they consult a physician. If necessary, an ambulance operated by the Reedy Creek Improvement District, will be called to take the guests to a satellite hospital of the Orange County Memorial Hospital

READY FOR PATIENTS

— The 36-bed ward of the Walt Disney World's main first aid station awaits the emergencies that can be expected among the thousands of guests.



located on the Disney World property — just off Interstate 4 and State Highway 535. The guest will make the decision to see a physician and at no time will the staff of Disney World give medical treatment.

The staffs of the first aid stations include 10 registered nurses, one nurse supervisor, four medical corpsmen and several hostesses. A physician is available at certain hours to see employees and take care of emergencies. An extensive communication network is used to alert the staff of any emergency and an extensive system of documentation is used to keep medical records of employees and the treatment given guests.

The Total Emergency

As previously stated, the emergency vehicle and its personnel are an important extension of the emergency department of a hospital. Over the past few years, cardiologists and specialists in emergency or "acute care medicine" have taken a deep interest in seeing that people with emergencies are treated well on the scene, and are given continued treatment enroute to the hospital. This makes the work of the physician easier once the patients have reached the hospital.

Physicians who are interested in "acute care medicine" are ready to face any crisis — from a psychiatric patient to a fibrillating heart. More and more physicians are limiting their practices to the emergency department. In some hospitals, the departments are manned by rotating staff members, volunteer physicians, or interns and residents, especially in teaching hospitals. Once the emergency department physician has stabilized the patient's condition and he is admitted to the hospital, the patient is turned over to the patient's own doctor or to the hospital's resident physician.

In some hospitals, the work of the emergency medical technician is completed when the head nurse of the emergency department says, "Thank you, gentlemen." In a few hospitals, the paramedics may assist with the care of the patient until he is admitted to intensive care or another department of the hospital.

The Future of Emergency Medical Services

People are no longer satisfied with the ambulance services once provided in Florida. Emergency medical care is unique in that those

who receive it obtain the quality of care the community offers. However, they can demand the quality of care they want and are willing to pay for.

The trend is toward more sophisticated vehicles that will be more or less an extension of the emergency department of the hospital. Such vehicles will require more highly trained personnel. Much has been done on the local level to develop a high quality system. Some areas have poor emergency medical services; the majority of those in Florida lie between good and poor. Now is the time to develop a state-wide emergency medical care system.

County and regional emergency medical care councils are needed to analyze and develop effective programs and overcome deficiencies. A few counties have such councils and they have been effective.

SOPHISTICATED INSTRUMENT — A physician, who is interested in improving the emergency medical services of the state, demonstrates to a Miami Fire Department ambulance team a new instrument that will detect and broadcast the heart beat of patients.



Regional councils could expand emergency medical services from urban centers to rural areas, thus giving quality state-wide coverage.

To do this it may be necessary to pass legislation that will delineate levels of training and specify the phases so that emergency medical technicians can progress from minimum levels to a "physician's assistant."

The present ambulance law should be strengthened so that ambulances and their equipment will meet the standards of the National Academy of Science and the National Research Council.

A central communications base should be established in each county or district that will act as a coordinator between emergency vehicles and other safety and emergency agencies — such as police, fire, Civil Defense.

Because smaller hospitals are frequently unable to handle all acute cases, Florida hospitals could be classified according to the abilities of their emergency departments. A system of rapid transportation between hospitals and major medical centers should be developed and one emergency department in each county or district designated as a major treatment center.

Public health, safety and transportation officers have visited Jacksonville, Miami and other Florida cities to learn what they are doing in emergency medical services. Florida has the potential to develop the leadership in this field. The Division of Health feels that the people of the Sunshine State deserve the best.

What You Can Do

If you believe that the kind of care you get when you have an emergency is important — and you want good emergency care — tell your elected officials. You pay for fire and police protection — to protect your houses and property. It is just as logical for people to want to pay for good emergency care to help save their lives.

A house that burns can be rebuilt. But a life that's lost because of inadequate care cannot be replaced. The tools and training to supply you with quality emergency care are available. You can have them if you ask for them!

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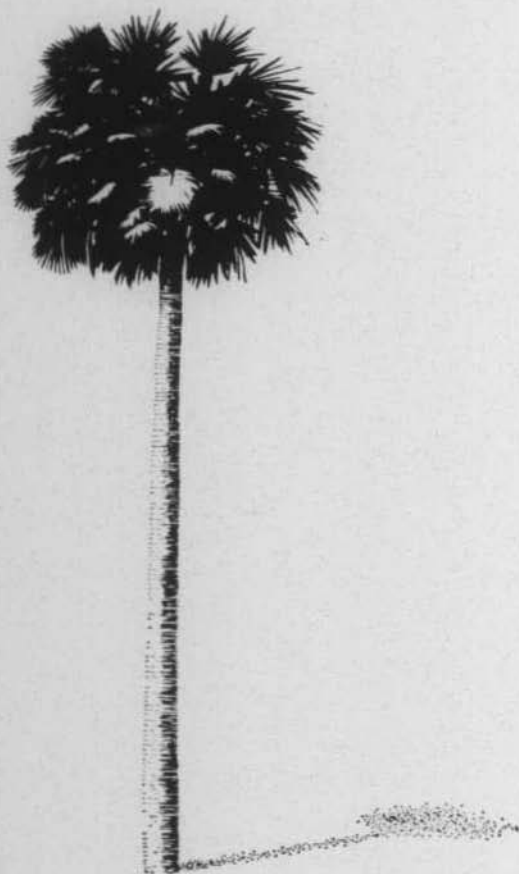
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FLORIDA HEALTH NOTES



Throw Away or Recycle?

VOLUME 63 — NO. 11

NOVEMBER 1971

*The Solid
Waste Dilemma*

FLORIDA STATE LIBRARY



Living in Litter

You only have to look around you to see how humans live.

A visit to Seminole Beach after a holiday weekend showed the playground of one of Florida's largest cities littered from one end to the other with beer bottles and cans, milk cartons, papers, combs, cardboard, food wrappers, pieces of clothing, hunks of wood and other trash. Some of the 50-gallon cans intended for such garbage and trash were filled and running over; others just yards away were empty. Other Florida beaches were in similar condition.

Spectators at a Florida motorcycle racing event used the 50-gallon cans, intended for trash, as seats. Other spectators had no place to put their solid waste and scattered it all over the ground. When the races were over, they left it that way.

Throw Away or Recycle?

The Solid Waste Dilemma



Many, many centuries ago, when Mr. and Mrs. Cave Man were finished with a meal, they dumped the meat scraps, bones and refuse into the nearest ravine. Left over skins, wornout leaves from their beds, and other discards also went into the hole. This went on day after day. When the ravine was full, Mr. Cave Man moved his family into a new cave where there was an empty ravine for his garbage and trash.

Today, Mankind has left those primitive caves, but we are still dumping our trash and garbage into the most convenient hole. We use more distant ravines. But the increase in population urbanization, and the need for more places to deposit our discarded boxes, food scraps, empty cans, bottles and other trash have made waste disposal a problem. Too often, the ravines where we want to deposit our solid waste are located close to someone else's back door.

The problem has risen because of our prosperity and mode of living. In 1920, Floridians generated 2.75 pounds of solid waste per person each day. Now, we are more prosperous and each day we produce 5.4 pounds per person. If the present rate continues, each person will generate 12 pounds a day in 1990. This means that Floridians will produce some 22 million tons each year. This could cover a roadway from Jacksonville to Miami 25 feet wide to a depth of 50 feet.

REFUSE CONTAINER (Cover photo) — Motorists who stop at interstate highway rest stops can deposit their refuse in ground-level containers. The plastic liner makes collection easy.

What is discarded by Mankind is called solid waste. This issue of *Florida Health Notes* will define solid waste; tell you about the problems that are involved in the collection, processing, transportation and disposal of solid waste; what is being done to relieve the situation; and what you, the reader, can do in the battle against this pollution that ranks a close third to air and water pollution.

Solid Waste — A Health Problem

Solid Waste is a health problem. It is especially a perplexing riddle in cities where large numbers of people are concentrated. Being a sociable creature, Mankind has migrated to cities. As more and more people moved into these population centers, problems have increased to where it is now a question of survival.

This is not new. It is as old as history itself. Ancient Babylon died when the water shortage became so acute that the middle class moved out of the city. Industrial towns in the United States have grown and boomed, only to become "ghost towns" when the industry — lumber, gold, textiles — faltered and utilities failed.

The shine of Florida's gleaming resort cities is being dulled by so many people moving in too rapidly for the municipalities to provide vital services. Many Florida cities are ringed with expanding subdivisions that demand more electricity, sewerage systems, water supplies and telephones. The collection, transportation and disposal of solid waste frequently cannot keep up with the demand for service.

The Division of Health and county health departments, plus other municipal, state, county, federal and voluntary agencies, and conservation groups are concerned with all aspects of the health

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POLK COUNTY SCENE

— Instead of putting their solid wastes and discards in this "mini-dump" (at left), residents leave their garbage all over the ground. This is a definite health hazard — but many people are careless.

problems created by solid waste. For years, the State Board of Health, now Division of Health, has been involved in solid waste as a potential air and water pollutant and as a sanitary nuisance. Florida Statute 381 gives the Division of Health the authority to establish regulations relative to the sanitary storage, collecting, processing, and disposing of garbage and rubbish.

The Division of Health has long been responsible for the operation of landfills throughout the state, and it has offered limited financial assistance for their operations to counties and mosquito control districts.

The Federal Government has also taken an interest in solid waste. In 1965, the Solid Waste Act provided for grants to states, with which they were to conduct solid waste surveys. The Division of Health participated in this program and recently published a "Solid Waste Management Plan for Florida." The Resource Recovery Act of 1970 provided grants for local community planning for solid waste management. It is expected that funds for this Act will soon be available. The Federal Government also is promoting a project called Mission 5000 — which is aimed at eliminating 5,000 open and burning garbage dumps throughout the nation by July 1, 1972.

The problems of recognizing and eliminating many of the health problems are compounded by the seemingly endless variety of solid waste components and the changing characteristics of solid wastes

during storage, handling, processing and disposal. Many communicable diseases are transmitted to man by insects and animals that are attracted to garbage, offal, manure and other types of solid waste.

Some health problems are easily recognized. Flies find open garbage cans inviting and they lay their eggs in the wastes. Here the larvae hatch and grow. If the cans are not emptied in a very few days, the larvae hatch into adult flies that plague the neighborhood. Flies contaminate man's food. They are capable of spreading typhoid, cholera, dysentery, anthrax and enteric diseases. They carry the eggs of intestinal worms on their feet and deposit these on man's food.

Rodents and snakes live in open dumps where the refuse serves as food. Boxes, abandoned automobiles and appliances serve as hiding places. Fleas, ticks and mites live on rodents and in their nests. Should man invade the dumps, diseases which are carried by these pests move from one rodent to another and can be transferred to man. Rats and their fleas transmit murine typhus fever, rat-bite fever, leptospirosis, salmonellosis and plague. Rodents and snakes will bite people who invade their domain. Mosquitoes breed in trash that holds rain water and these insects carry such diseases as encephalitis, dengue fever and yellow fever.

Children, playing in areas of discarded trash, are apt to cut themselves on bottles and cans or have accidents involving materials or fluids found in the wastes.

DIRTY AMERICA —
Trash litters the roadside of a Dade County city. This pile of rubbish lies in a vacant lot directly across from an elementary school.



In addition to disease-carrying pests, insects and accidents, the improper storage and disposal of solid waste destroy the aesthetic value of property. People rebel against having someone's trash and garbage dumped within sight of their homes.

The improper disposal of solid waste contributes to the pollution of the environment. Large volumes of smoke result when attempts are made to reduce the amounts of solid waste in open dumps by burning, and from improperly designed and operated municipal incinerators, backyard trash burners, and on-site commercial incinerators. This creates air pollution. A new Florida law went into effect July 1, 1971, that prohibits open burning unless specifically authorized for such purposes as frost protection, land clearance, campfires, or residential waste disposal where refuse collection is not available.

In many areas of Florida there are high water tables and attempts to bury solid waste can contribute to the pollution of the underground water supply source. When garbage is buried in a pit with a porous bottom, fluids from the garbage may leach into the underground aquifer from which a community's water supply is obtained.

The "Litter Society"

How often have you driven along the highway and seen beer and soft drink cans and bottles, paper, plastic, pieces of tires and other litter? Despite years of campaigns by the "Keep America Beautiful" organization and a \$100 fine law, it is a common practice to see people driving along the road and carelessly tossing unwanted items out of their cars. Individuals, who would not think of littering their own property, thoughtlessly dump their discarded cans and trash along the highway. According to the National Academy of Science, motorists drop some 16,000 pieces of trash on each mile of primary highway each year. The Florida Department of Transportation reported that for the fiscal year of 1970-71, it spent over one million dollars in picking up litter along the state's roads.

Litter is both a health and safety hazard. An estimated 130 persons lose their lives in the United States each year in litter-fed fires. Every 12 minutes a home is destroyed or damaged by a fire started in trash. Foreign matter on the roads of one state contributed to 21 fatal and over 1,000 non-fatal accidents in one year. Littered

waters endangered swimmers, fishermen, boaters, fish and plant life. During one year, 200 boats were involved in accidents caused by striking floating objects.

People are beginning to do something about it. Many communities, schools and organizations sponsor crusades to remove highway litter. "Earth Days" and other special observances stress the conservation of national resources and endeavor to change the "littering habits" of Americans.

One of the larger youth organizations, the Boy Scouts of America, has been involved in litter-prevention activities for many years. Currently, the Scouts have Project SOAR (Save Our American Resources) underway. This program highlights on a nation-wide scale the need for litter cleanup, litter prevention, and recycling. Over 100,000 Florida Cub, Explorer and Boy Scouts were involved in a "Keep America Beautiful" Day in June 1971. Nine Boy Scout councils in Florida took part. One council had some 4,000 Scouts participate. They covered over 3,700 miles of roadside and river banks and 1,200 acres of empty lots and park lands. The 203 participating units collected 11,500 cubic yards of trash. This amounted to 115 tons. Some of the material collected was sold to various manufacturing companies for recycling; the balance was carried by municipal packer trucks to landfills. In addition to the special one-day drive, individual troops and units of the Boy Scouts continued to clean up vacant lots and cut weeds as part of their projects.

The littering of Florida's highways and waterways has become a misdemeanor in Florida and persons, who are convicted of violating the law, passed by the state's 1971 Legislature, can be subjected to a fine and/or imprisonment. When people are brought before a court on the charge of littering, more and more judges are giving them a choice of paying fines or picking up litter for several miles along the highways. Frequently the convicted person chooses to pick up the trash.

The littering of waterways is a problem in many cities. The marine patrol in Dade County has started a campaign to "get tough" with boaters who pollute Miami waterways with beer cans and breakfast scraps. Such trash contributes 30 per cent of the pollution in the Miami River. Repeated violations can bring fines and/or incarceration.



PROJECT SOAR — Boy Scouts load trucks with trash, cans and litter they picked up during "Keep America Beautiful" Day. (Photo courtesy of Florida Publishing Company)

Solid Wastes — Our Discards

The term "solid waste" covers a multitude of society's discards — anything that is thrown away and the moisture content is not enough to allow it to flow freely. The term includes anything that has to be removed and eliminated from man's house, business, institution, farm or industry.

Garbage is food wastes that will decay. It includes putrescible (capable of rotting) wastes from preparing, cooking and serving foods, from produce markets; and from processing, canning and quick-freezing industries.

Rubbish is nonputrescible wastes and includes paper, wood, yard trimmings, boxes and noncombustibles — such as metals, glass and dirt.

Junk refers to anything that is currently valueless, such as automobiles, household appliances, furniture, paper. Items that are junk to one person may be another's treasures.

Refuse includes garbage and trash, as well as all other solid or semi-solid wastes, such as sewage sludge, abandoned motor vehicles, dead animals, demolition rubble and street sweepings.

Offal means waste animal matter from butcher, slaughter and packing houses.

Manure includes body wastes from animals or fowls, including cleanings from barns, stables, corrals, pens or chicken coops.

Miscellaneous wastes include discarded Christmas trees, rubber tires, various plastic materials and cemetery floral pieces.

Special wastes include pathological and anatomical wastes from hospitals, clinics and medical centers; industrial wastes, demolition and construction debris, large trees, sludge from water and sewage treatment plants, and furniture and appliances from residences.

Hazardous wastes includes toxic, poisonous and nuclear substances.

Solid wastes are also classified according to source:

Domestic refuse comes from households and apartment houses.

Municipal refuse — from street litter, playgrounds, zoos, schools and solid wastes from water and sewage treatment plants.

Institutional refuse — from hospitals, clinics and prisons.

Commercial refuse — from businesses which operate for profit, including restaurants, office buildings and markets; and

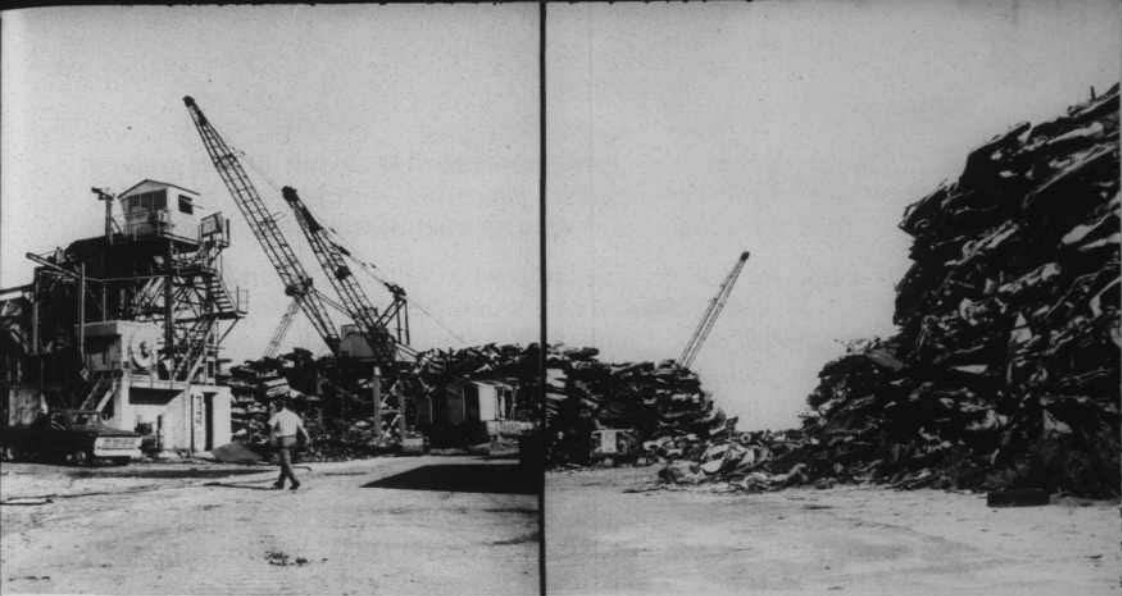
Industrial wastes — from factories, processing plants, repair and cleaning establishments, refineries and rendering plants.

Other types are agricultural, construction and land clearance wastes.

Recycling — Waste Not! Want Not!

Americans have long been a society of extravagance. Our wealth and prosperity have given us the idea that there is no bottom to the cornucopia — our horn of plenty. Our automobile industry pushes the idea of a new car every year with the latest models serving as status symbols. Other industries, such as household appliances, garment, photographic, radio and television, are continually putting forth their latest models. Their advertisements accent that "you need the newest to keep up with the times — if not the Joneses." The idea that progress means to use, expand, discard, tear down and build again has been promoted in the United States for a long time.

Americans need to learn the value of reusing materials. The rainbow that spreads from sea to sea will fade with the exploitation



RECYCLING AUTOMOBILES — Abandoned vehicles are shredded into small, fist-size pieces of metal in this reclamation plant. Cars are just one type of discard that is being recycled in Florida.

of our land. The U.S. Senate Public Works Committee said, "It is now evident that the industrial economy of the United States must undergo a shift from a use-and-discard approach to a closed cycle of use-and-salvage, reprocess and reuse — or else face the alternative of a congested planet that has turned into a polluted trash heap, depleted of minerals, devoid of plant and animal life, with a climate intolerable to man."

Recycling is one of the more recent concepts in the disposing of certain kinds of solid wastes. However, important factors are involved in recycling. The most important is economics. In order to reuse items that are now being discarded, the cost of returning them to the processing plants and preparing them for reuse must be within reason. The distance from the user of the primary materials, such as paper, glass, and metal, to the recycling plant must be such that transportation costs are not major factors. Also, included is the question of zoning — whether or not the storage place and/or reclamation plant can be located close to the people who are discarding the material so that the cost of reclaiming the material for reuse will be small.

Some items are now being recycled. Waste paper that meets high-quality standards can be de-inked, shredded and the fibers reused in making recycled paper. Some 360 million tons of solid wastes are generated by homes and businesses in the United States each year, of which some 180 to 200 million tons are paper. At the

present time, much of the paper cannot be recycled. But new grading methods and more sophisticated sorting techniques are being developed to meet the demands for recycled paper.

Many of today's beverages are sold in aluminum cans. These are not reusable as such, but can be shredded and melted for use in manufacturing new cans. Some aluminum manufacturing companies have established collection centers where the cans are received and subsequently forwarded to a reclamation plant. During the first eight months of 1971, a Florida plant processed over 783,000 pounds of reclaimed aluminum.

Beverages also are purchased in glass bottles. A deposit is required on reusable ones which are returned to the beverage company. Some types of glass can be reused and manufacturers are paying for non-returnable bottles. These are ground up, melted down, and returned to the market as new bottles. One Florida firm recycled some 4.3 million pounds of glass in one eight-month period. However, many bottles are not returnable. Glass does not deteriorate with time. Research is also being carried out to use ground glass in a highway material called "glassphalt."

Nothing is more of an eye-sore than abandoned automobiles. They are seen along rural highways, in empty lots, and on city streets. Frequently all of the useable parts have been removed and the empty hulls, once someone's pride and joy, are left to rust and deteriorate.

In the past couple of years, several automobile reclamation plants have started operations in Florida. Anyone can bring automobiles to them. These are stock-piled until a crane drops them into a huge machine that shreds the car bodies into small, fist-size pieces. Magnets separate the non-ferrous metals. The shredded iron is loaded into freight cars or on ships and sent to the best-paying markets. An automobile reclamation plant in Tampa is located next to a steel manufacturing company that makes reinforcing rods from reclaimed vehicles.

Glass and aluminum companies, located in several Florida cities, receive bottles or cans for reclamation. Most of this material comes from surrounding areas. However, many sections of Florida are too far removed from these plants for transportation of the materials to be economically feasible. When this is the case, residents of the communities should ask their civic clubs and local governments to take an interest in establishing collection points for these items so

that it would be feasible to transport the materials to a recycling center when large quantities have been collected. A little ingenuity can come up with a way to overcome the distance problem.

Collecting Solid Wastes

When the Cave Man had refuse to throw away, he carried it to the nearest ravine and heaved it into the hole. This required a strong back and a weak sense of smell. After he had invented the wheel, he found that he could carry more trash on a small cart and with this he drew the garbage to the dumping site. As history and time passed, man tamed the horse which he hitched to the wagon; until the beginning of the 20th Century, this was the means of drawing the collected refuse to the city dump.

With the invention of the automobile came the truck and still easier means of carrying solid wastes. During the past 10 years, the packer-type garbage truck, with which we are familiar, has come into wide use. The refuse is loaded into an opening in the back or side of the vehicle and a compaction device compresses it into a much smaller volume.

IN THE GOOD OLD DAYS – At the turn of the century, garbage was collected by “garbologists” in horses and wagons. Rural areas had no such service. (Photo courtesy of Waste Management, Inc.)





PLASTIC BAGS — Disposal paper and plastic bags are used in many communities for garbage collection. They are lighter and easier to handle than metal cans. The packer-type garbage truck (opposite page) is a familiar sight in many Florida cities. A compaction device compresses the solid waste into smaller volume.

From the overall standpoint of solid waste handling, collection represents 80 per cent of the costs. In a majority of Florida cities, the collection of solid waste is carried out by municipal sanitation crews. In suburban areas, most of the collecting is done by franchised companies and individuals. Many of these private haulers perform the entire operation — from collecting, transporting and disposing of the solid waste to the billing of the customers who use the service. In many rural areas, the individual homeowner is left to dispose of his solid waste and discarded materials the best way he can and this frequently leads to promiscuous dumping.

In one Florida county, the environmental services — which has charge of the solid waste program — has instituted “mini-dumps” (20-cubic-yard garbage collection boxes) in areas within reasonable driving distance of every home in the county. People take their garbage to these dumps, but instead of putting it into the containers provided for the refuse, some thoughtlessly dump it on the ground. This means that taxpayers have to pay for men the county hires to clean up the areas before the boxes can be hauled to the landfills.

The type of containers used by the homeowner has a bearing on the time spent in picking up garbage and the cost of the service. The use of the conventional garbage can of metal or plastic for putrescible wastes gives few problems if it is in good condition with a tight-fitting lid. Disposable paper and plastic bags are being used in

many communities for garbage collection, but these have not received the unqualified endorsement of health authorities.

Opponents of the bags claim that animals tear the bags and distribute their contents at the curb and mischievous youngsters cause more vandalism with the bags than with cans.

People who are in favor of the disposable bags claim that they are noiseless, lighter in weight, faster (because the "garbologists" — solid waste workers — do not have to make a return trip to the curb); and being sealed, they do not attract animals.

A number of Florida communities are experimenting with disposable bags. While these bags are more costly than cans to the homeowner over a long period of time, they are more economical for the municipality or franchised company which is providing the collection system.

The residents of some communities are offended by the lack of aesthetics when garbage cans are placed at the curb so they have their garbage picked up at the back of their homes. Surveys have shown that curb-side collection cuts the cost of garbage pickup by 20 to 25 percent over backyard pick-up.

Another factor in the cost of solid waste collection is the amount of yard and shrub trimmings generated by Florida homes.



Restrictions are often made on the size of tree limbs; some municipalities require that such debris be containerized.

The collection system, in order to be effective, must be a governmental responsibility and be under the constant control and supervision of a municipal, county or other government agency. This is essential to insure that health standards are maintained. Adult flies emerge from the eggs in four to five days, depending upon the temperature, and this makes it necessary that the collection should be at least twice a week.

A Sophisticated Collection System

The tons of popcorn boxes, hot dog wrappers and other refuse generated by the thousands of visitors to Walt Disney World are whisked away from the Magic Kingdom and the Contemporary-Resort Hotel on a gust of wind.

The refuse, collected in some 500 small trash cans lined with plastic, is dumped by attendants into 15 collection points of a vast underground vacuum tube network called Automated Vacuum Collection (AVAC) system. The collection points also serve the kitchens and storage areas where boxes and wrappings are disposed of in large quantities. Putrescible wastes are ground up and poured into the Disney World sewerage system.

The AVAC system has 12,000 feet of 20-inch steel tubes that carry the trash to a hopper where it goes into a 40-cubic yard box. The solid waste then is hauled to a double incinerator with a capacity of 100 tons a day where it is burned. The incinerator has the most modern air pollution control equipment.

The vacuum in the sophisticated AVAC system is created by three 300-horsepower blowers that create a wind of near hurricane force — 60 miles an hour. The refuse is whisked through the tubes at 80 feet per second. Dust from the trash is filtered from the air and released into the atmosphere.

The collection system's cycle begins with the hopper nearest the disposal plant. The automated system opens the valve in the bottom of the hopper, allowing the refuse to drop into the transport pipe and be carried to the disposal plant. The valve in that initial station is closed to receive more trash, the valve in the second station is opened, and the process is repeated throughout the entire AVAC system.



AVAC SYSTEM — The trash from Walt Disney World's Magic Kingdom is whisked through the Automated Vacuum Collection system to this terminal where it is packed into 40-cubic yard containers. The trash is then hauled to an incinerator. (Photo courtesy of Walt Disney Productions)

The AVAC system at Disney World is the first and largest in the United States. Another system, located in a Los Angeles hospital, is under construction. Engineers are planning to use such a sophisticated solid waste collection system in large apartment buildings and entire complexes of buildings. While the system is expensive to install, the maintenance costs are low; and unlike human collectors, it will not go on strike.

Transporting Solid Wastes

Where do you take solid waste once you've collected it? No one wants it placed at his door. Suitable land close to populated areas is becoming scarce. Landfills once miles from the nearest residences are now ringed with new homes and the homeowners want the sites closed down. Lands near enough to cities to make the hauling of solid waste economically sound often have become too expensive for landfill sites.

SO! Where do we put the garbage and trash that we, the people of Florida, generate every day?

Hauling solid waste long distances can be expensive and time consuming. One Florida county has closed all of its burning and unsightly dumps and established a transfer station where municipal and private collectors bring their solid waste. From bins, the garbage is packed into 40-cubic yard containers. These are hauled to a landfill area where the solid waste is buried.

However, the journey to the landfill and back requires the transfer vehicles to travel an hour and a half; one truck can make

TRANSFER STATION — A garbage truck unloads at a Seminole County transfer station (1). The solid waste is compacted into 40-cubic yard transfer boxes (2) which are loaded onto trucks (3), and hauled to the landfill (4) where it is buried.



Be Careful Where You Put Your Trash

This incident was observed at a gas station operated by an elderly couple. It was evident that the couple kept the station scrupulously clean. A big, shiny, new automobile pulled into the station and the driver asked the elderly man to fill the tank. While the car was being filled, the driver emptied his ashtray onto the ground. The elderly woman, in an effort to keep the station clean, hurried over with a broom and dustpan and cleaned up the ashes and cigarette butts. When she was through, she opened the backdoor of the new automobile with a flourish and emptied the driver's trash onto the seat.

only six trips a day. In order to meet the demands of a growing population and to facilitate the hauling of the solid waste to the landfill, the county is building a second transfer station that will handle 80-cubic yard boxes.

Some authorities on solid waste have suggested that garbage and rubbish be hauled by railroad to distant rural areas for burying. This method of transportation and disposal is now in the planning stage in one area of Florida and several railroad companies are considering this way of solid waste transportation.

Disposing of Solid Wastes

Everyone in Florida contributes to the solid waste problem. The attitudes of the average citizen is: If it's useless, let's get rid of it, but don't spend any money doing it.

Many homeowners, once they have placed their garbage and trash at the curb, want it picked up without any fuss and bother to them. They couldn't care less what happens to it.

The amount of solid waste has increased due to packaging of products for the market place, and the advent of the non-returnable bottle. Much of today's point of sales and advertising is based on attractive and often useless wrappings. These papers, cardboards, bottles and cans add to the cost of solid waste disposal. But whether we like it or not — the collecting, transporting and disposing of our solid waste is the third most expensive item in the municipal budget — ranking behind education and highways.

Solid waste disposal has long been a "poor relation" when it comes to dispensing government funds for pollution control. Federal

Reclamation Plants in Florida

If you can, start recycling some of your trash now. At the present time, three plants are accepting scrap glass under the auspices of the Glass Container Manufacturing Association:

Anchor Hocking, Jacksonville; Thatcher Glass Company, Tampa; Owens-Illinois, Lakeland.

Three reclamation centers are operated by Reynolds Metals in Jacksonville, Tampa, and Miami where aluminum cans are accepted. American Can and Continental Can Companies' plants at Tampa, Miami, Auburndale and Winter Haven accept steel cans for recycling.

and state monies have not been as available for solid waste programs as they have been for air and water pollution control. However, solid waste must be considered a utility — the same as the telephone, water supply, sewage and electricity — and citizens should back their public officials when they propose better disposal methods.

Burying Solid Wastes — Landfills

The landfill is the most common type of solid waste disposal. But as pointed out earlier, land is becoming more expensive. To haul solid wastes to more distant points is equally costly. Rural residents do not want ugly landfills marring their picturesque landscapes.

Many public health authorities are in favor of sanitary landfills. This method of solid waste disposal calls for the burying of refuse in a dry trench, covering it with earth at the end of each day. There is no burning and no pollution of water supply sources. In some areas, residents oppose sanitary landfills because they fear that these areas will become the same as the familiar open dumps. However, when local people are informed about the proper operation of a sanitary landfill and that after the site is filled and closed, the entire area can become a park or playground, they invariably withdraw their opposition.

Sanitary landfills are honorable ways of disposing of solid wastes, but they are rare in Florida. In many sections of the state, water tables are too close to the surface of the ground to permit sanitary landfills. Landfills in Florida range from a few properly operated sanitary landfills to open burning dumps. Operators of sanitary landfills have to take into consideration the water table, the

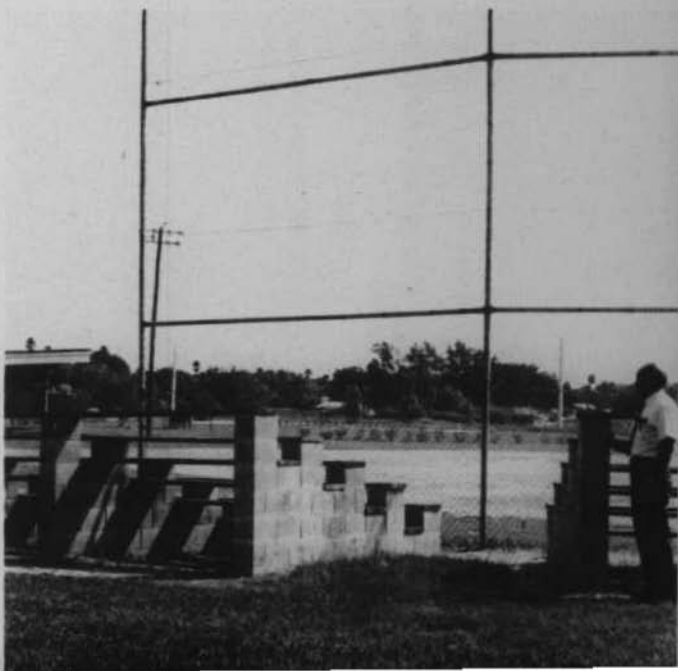


types of soil at the various sites, the porosity of the soil at the bottom of the trench, and the availability of soil to cover the garbage each day. Scavengers must be prohibited.

Landfill projects, when properly carried out, have been made into baseball diamonds, parks and other recreational areas. Several community ball parks have been built on landfills in Florida. Solid waste, in one Virginia city, is being compacted into a hill that will eventually be an amphitheater that will seat 10,000 persons. The back of the hill will be made into a soap-box derby track. The dirt for the hill is being removed from a near-by area that will be eventually made into a lake around which the recreational park is planned. Solid waste, in an Illinois city, is being used to build a ski slope.

LANDFILL PROJECTS —

This Polk County phosphate pit (above) has become a landfill. The crane at left digs pits and covers the rubbish. A Seminole County baseball diamond (right) has been built on top of a landfill. The fill was allowed to settle for several years before the diamond was completed.



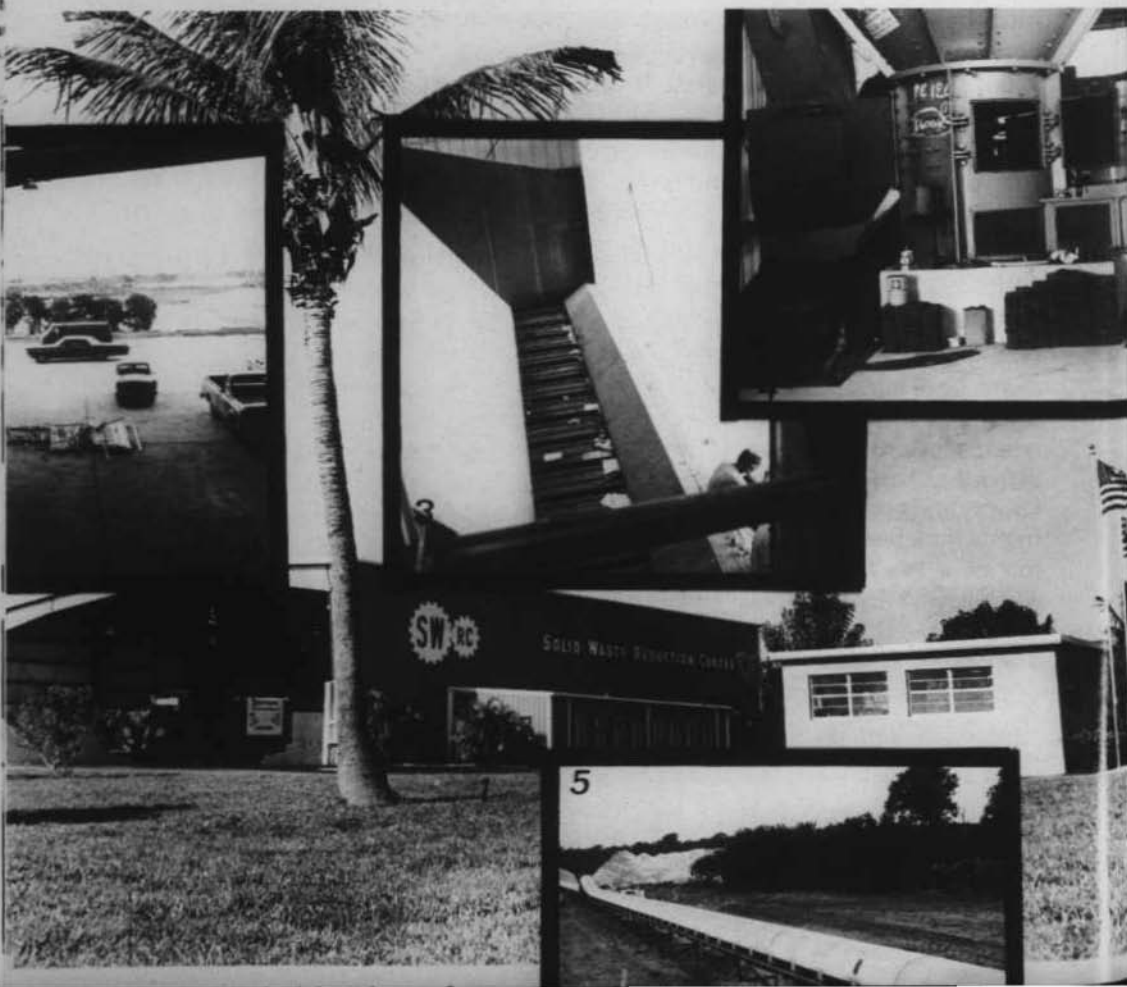
Incineration, Composting and Grinding

Where landfills are not feasible, communities have turned to incineration of their solid wastes. Six Florida counties have municipal-type incinerators within their boundaries. However, many of these do not, as yet, have effective air pollution control devices.

To most people, "incineration" is a dirty word. It conjures up images of tall stacks belching forth black, odorous smoke. But a properly designed and operated incinerator, with anti-pollution equipment, can be an asset rather than a psychological or actual liability.

Incineration is expensive, but a centrally located plant can cut down on the long distance hauling of solid wastes. Incineration is a

VOLUME REDUCTION — Solid waste is brought to the Solid Waste Reduction Center (1) where it is dumped on the broad floor (2). It is loaded onto the conveyor belt (3), that carries it to the grinder (4) where it is shredded into small pieces. The finished material is then carried to the disposal site by a covered, endless belt (5).



method of reducing the volume of solid waste; but a landfill is still needed to dispose of ashes and non-combustable wastes.

Another alternate to landfills is composting — but this system has its drawbacks. At present this method involves the manual separation of the “non-garbage” items for possible salvage. The garbage is ground and placed in long narrow concrete tanks. The material is agitated and supplied with air under pressure to promote the bacterial action that decomposes the wastes. When the action is completed, the material is inert, odorless, and is valuable as a soil conditioner.

The two composting plants that were in operation in Florida had difficulty in finding a market for the finished compost. Without this market, a composting plant will be expensive to operate — unless mechanical separation methods are perfected. While much of the solid waste can be converted to compost and some can be recycled, the remaining non-combustable materials must be taken to a land disposal site for burying.

Grinding, another method of reducing the volume of solid waste, is being introduced to Florida by a private solid waste management company. In this method, putrescible and non-putrescible wastes are ground, or shredded into very small pieces. Metals, bottles and some paper are removed; and the ground material is carried to a disposal site by an endless, covered conveyor belt. Here it is compacted into a fill area on top of the ground, and left uncovered.

While grinding has been successful as a demonstration project in the North, the grinding plant and method of disposal has been given a provisional permit in Florida to see if the disposal process will work in the warmer climate. Should the lack of daily cover create a public health nuisance, the material will be covered each day with earth as required for a sanitary landfill.

Several research projects for the processing of solid wastes are being conducted in the United States. Some of these include:

- * high temperature incineration that reduces the solid waste to a hard, gravel-like substance suitable for road building;
- * standard incineration that uses heat energy produced by the burning solid waste to heat auxiliary boilers, thus making steam as a by-product;
- * shredding, bailing and hauling solid waste out to sea; and

- * hydropulping process in which wastes are ground into a slurry; metals and glass separated automatically, and paper fibres recovered for re-use.

The use of garbage as food for hogs is declining. Generally, wastes from food servings and preparation in restaurants are separated without wrapping and picked up by the hog lot operator. The law requires the garbage to be cooked before it is placed on impervious feeding platforms; and the area be maintained in a sanitary manner. This method of disposal is becoming economically unsound because of hauling costs, labor and the problems involved. Also, restaurant personnel are often careless about inclusion of broken glass, cans and other materials harmful to hogs.

Giving Mother Earth A Chance

Unlike air and water pollution which can move across state and national borders, solid waste pollution tends to remain just where we put it. If we put solid wastes into the oceans and groundwaters, we pollute them. If we burn it, we pollute the air. If we bury it, we pollute the land and possibly our water-supply sources. Even if landfills are operated properly, the end use of the land is restricted to parks, playgrounds, golf courses or parking lots because of potential settling of the ground.

While public health and medical science have been winning an ever-increasing degree of control over death, our overcrowded and

LEGAL ACTION — Local and state governments have passed anti-litter laws to help protect the environment.





TRASH—TRASH—TRASH — Unless Florida starts recycling more of its solid waste, it will have no place to put the growing millions of tons of trash that are being discarded every day.

polluted planet is beginning to offer less and less opportunity to enjoy Nature as we once knew it. With Earth's resources dwindling, land becoming scarce, atmosphere and waters turning to cesspools, Mankind needs to take a second look at what he is doing to his environment.

What can you, the reader, do?

You can become informed on what your community is doing to dispose of its solid waste.

You can support the new laws on littering and open burning that were passed by our 1971 Florida Legislature, or laws that may subsequently be enacted.

You can promote recycling. We need to revise our ideas and priorities on goods and services. Recycling may need to be developed to the point that methods of disposing of the unusable components of a product — such as the empty container — be devised before the product is placed on the market. In many cases, packaging — which is a multi-million dollar business — can be completely eliminated or at least reduced. Research is being conducted to cut down the cost of separating usable materials as markets for these materials are developed. The idea of recycling shows great promise and it is the one true way of disposing of our solid wastes and conserving our natural resources.

Time is running out. If we don't learn how to take care of our waste products, we will be crowded off our own planet. All of us need to learn to appreciate our environment. We need to stop littering our beaches, highways and waterways, empty lands, parks and playgrounds. In other words, we must stop "living like pigs."

We can only solve the problems of what to do with our solid wastes if you, the reader, the Division of Health, county health departments, mosquito control districts, and everyone work together to find the answers before it is too late.

What You Can Do

You may ask what you can do in the fight against solid waste pollution. Here's what you can do:

- * Use only returnable bottles.
- * Don't buy products that have unnecessary packaging.
- * Carry a litter bag in your car and boat. Empty it only in proper receptacles.
- * Reuse paper bags, containers and plastic bags.
- * Use your ashtray — not the car window. Or better still, don't smoke.
- * Flatten containers before discarding them.
- * Help organize and participate in regular paper, glass and metal campaigns in your community.

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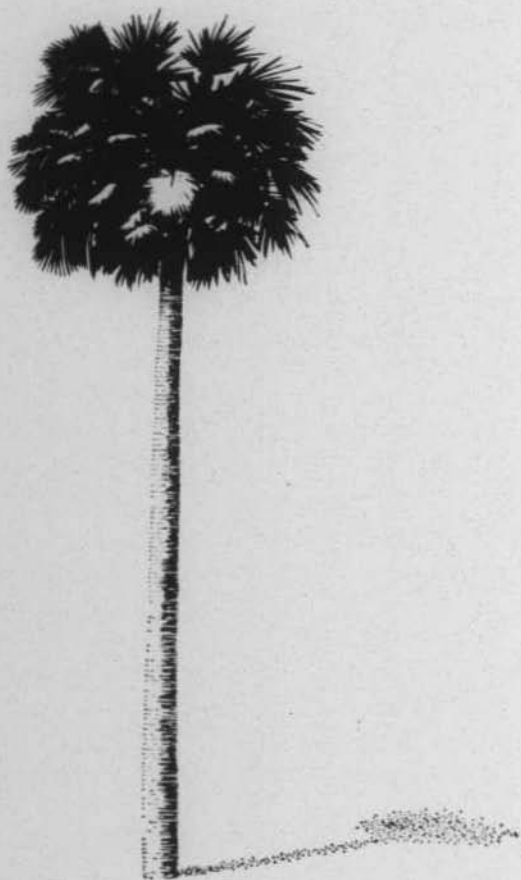
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FLORIDA HEALTH NOTES



VOLUME 63 — NO. 12

DECEMBER 1971

ACCIDENTS

in the Home can KILL

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R.A. Schaeffer

STICK 'EM UP! (cover photo) — Playing with Daddy's gun could lead to tragedy. Over 1,200 Americans are killed annually by the mis-handling or playing with firearms.

HAUNTED MANSION — Your Florida home may not look like this moss-draped haven for ghosts and goblins, but it may be haunted by potential hazards that could cause accidents.



Accidents in the Home can kill

Do you believe in haunted houses? No! You should. Your house may not be haunted by sheet-wearing ghosts or headless monsters, but it may have the very kinds of hazards that can injure or kill you. Your home may be haunted by potential hazards that are not imaginary but real.

Houses everywhere are haunted by such potential hazards as

- * objects on floors, spilled liquids, rugs that can cause falls;
- * poorly lighted staircases, makeshift ladders;
- * bathrooms with wet floors and electrical appliances too near bathtubs;
- * holes in the yard, broken sidewalks;
- * frayed electrical wires and overloaded circuits;
- * improperly stored household cleaners;
- * easily-reached aspirin and other medicines;
- * knives, firearms and other forms of danger that are facts.

How do you recognize these hazards? What can you do about them?

Christmas and holidays are the traditional themes of most magazines in December. *Florida Health Notes*, in this issue, departs from this tradition with the desire that you'll have many joyous holidays in the future. We will not discuss Halloween, ghosts, goblins and witches, but we'll tell you about such hazards as falls, poisons, glass doors, firearms, fires, toys and electrical appliances. We will also tell you how you can protect you and your loved ones from the hazards of your home that can kill.

Leading Causes of Injuries

In order to properly talk about the dangers in the home, we will have to show you how important it is to prevent home accidents.

Accidents do not "just happen." They are caused by carelessness, thoughtlessness — a mislaid tool or toy; haste or impatience.

Diseases of the heart, cancer and circulatory system are the three leading causes of death in Florida. Accidents rank fourth with a total of 4,343 persons dying of all types of accidents in 1970. This gives a substantial death rate of 63.5 for each 100,000 persons.

Motor vehicle accidents accounted for some 2,100 of the 4,343 accidental deaths in Florida. The balance were caused by a variety of accidents but those in the home took the lives of close to a thousand persons. Thousands of others were permanently disabled. Many of the injuries and deaths were among elderly people.

FLORIDA HEALTH NOTES

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* Falls accounted for a large portion of the accidental deaths, especially among those over 65 years of age. There were some 9,600 such deaths in the United States in 1970.

* Nationwide, fires, burns, and deaths associated with fires accounted for 5,600 deaths.

* Poisonings by solids and liquids — drugs, medicines, mushrooms and shellfish, as well as commonly recognized poisons — accounted for approximately 2,500 deaths in the United States in 1970.

* Suffocations from accidental ingestion (swallowing) or inhalation of objects or food, which resulted in the obstruction of respiratory passages, accounted for 2,300 deaths.

* Suffocations, including deaths from smothering by bed clothes, thin plastic materials, cave-ins and confinement in closed spaces, accounted for 1,100 deaths nationwide.

* Poisonings from carbon monoxide — due to incomplete combustion of cooking stoves, heating equipment and standing motor vehicles — took 1,200 American lives.

* Over 1,200 Americans died of firearms, including firearm accidents in or on the home premises, while cleaning or playing with guns.

* Other types of home accidents, including drownings, electrical current, explosions, blows from falling objects took the lives of over 3,000 citizens.

You see that while people think of their homes as their castle or "haven" from the outside world, it is not the safest place to be. No way has ever been devised to count all of the bruises, banged elbows and knees, and black and blue marks — or broken bones — suffered by Americans in their homes. But public health officials are certain of one thing: More accidents happen in the home than anywhere else.

Beware of Falls

The fall, an act of tumbling or toppling from a standing or sitting position, is more dangerous than most people think.



DANGER IN HIGH PLACES — Although more elderly people are the victims of accidental falls, the misuse of stepladders can injure even the younger person.

While more youngsters are injured by falls, more elderly people die from them.

Half of all fatal accidents among people over 65 years of age are due to falls. To people of this age, accidents are as important as tuberculosis or diabetes. Although people of retirement age represent only about

15 per cent of the total population, they suffer approximately 80 per cent of the home fatalities.

The question is often asked: Why do people over 65 have more frequent and more disabling fatal accidents than young people?

The answer: As much as the elderly would like to deny it, their bodies are growing older and weaker.

Most of them really appreciate the fact that they are getting older when they have to start wearing bifocals. They have less control over their feet. They need more light for reading and seeing; their hearing and smell decrease in acuity. Muscular skills, endurance and coordination decrease — and, most important, the elderly persons' reaction time to an imminent danger is lengthened.

The bones of elderly people's bodies become thinner and weaker and break more easily under strain. Reflexes are duller and slower. Chronic illnesses add to age-induced weaknesses through associated dizziness, apathy and a sense of detachment from the environment. Illness, fatigue, haste, emotional upset, alcohol and drugs increase the individuals' chances of falling.

Accidental falls, that occur on staircases, are due most frequently to missing the last step or group of steps in the mistaken belief that the bottom has been reached. As one elderly person said, "Once you are going — you've got to go. You can't regain your balance as you could when you were younger."

Slippery surfaces are an important cause of accidental falls. The elderly person who falls may attribute the accident to a small mat, sliding rug, slippery linoleum or spilled liquids. Two-thirds of all home falls resulting in death occur at floor level. Wrinkled rugs and slippery floors often trigger falls; falls on stairs rank second; furniture is the Number Three hazard, followed by paved walks, ladders and scaffolds.

Many elderly people tumble easily when upset by a toy, pet or grandchild. Protection against such hazards is difficult. Poor fitting shoes and poor judgement — associated with resistance to advice — also contribute to falls.

Young people are also subject to falls when they use poor judgement in climbing on folding chairs or stools to change light bulbs, hang drapes or paint. Unsafe ladders or placing ladders on uneven ground have caused many

people to fall. Broken or uneven pavement, oily or wet sidewalks, scraps of fruit or rubbish on the pavement can lead to falls.

HERE'S WHAT YOU CAN DO TO PREVENT FALLS.

- * Provide handrails on staircases and use them. All steps should be of the same height; the bottom and top steps should be painted an easily seen color. Stairs should be well illuminated.

- * Preventive measures for throw rugs: use rubberbacked, non-skid rugs, non-skid floor waxes; discard small sliding mats, tack down the ends of rugs and remove thresholds. Repair loose floor boards and floor coverings.

- * Keep traffic areas clear of furniture, especially when there are elderly people in the home. Have walking areas in the home well lighted. There should be adequate storage space for tools, playthings and utensils.

- * Well-fitting shoes, with non-skid soles and heels, provide a firm base to help prevent falls. Too long skirts, trailing sashes or belts, floppy cuffs on trousers or bluejeans are all tripping hazards. Shoes should be kept free of mud or grease, particularly when climbing ladders.

- * Use sturdy step ladders or stepstools for climbing short heights. A strong straight chair, or sturdy table can be safely used

if placed firmly on a level surface. Ladders should be constructed of substantial materials, be maintained in a safe condition, and be properly used.

* Non-skid surfaces (such as adhesive strips) and grab bars should be installed in bathtubs, showers and near toilet seats.

Real Hazards - Fires and Burns

Ghosts have never been known to set fires or burn down haunted houses, but the potential hazards of fires and burns exist continually in every home.

Vast areas of Florida have no fire codes for homes; there is no law that says a man cannot build a fire in the middle of his living room. Over twice as many fires strike homes as churches, industrial plants, stores, schools, restaurants. In the United States, some 800 homes are destroyed by fire every day.

Nearly all home fires could be avoided. The most frequent causes are careless smoking, flooded oil heaters, grease on kitchen stoves, children playing with matches, and misuse of electricity. Fires caused by nature, such as lightning, are few.

All of the ingredients of a disaster may be found on a warm, sunny, Florida patio. A lighted cigarette or pipe in the hands of a drowsy individual can lead to burns. The lighted cigarette, or pipe ash, can drop onto the chaise lounge; it smolders, and the individual's clothing catches fire. The bedroom, however, is the deadliest place for fires. These are started mostly by people who smoke in bed or while sitting in overstuffed furniture.

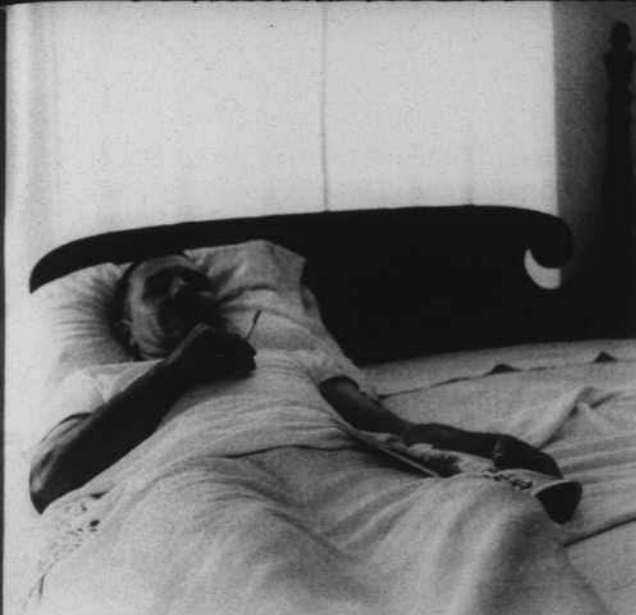
Firemen, who are called to answer home fires, frequently are told:

"I went to answer the door."

"The baby was crying. I left the kitchen to see what was wrong."

"I had several things cooking for a dinner party."

"I was melting lemon extract with butter . . . I didn't know the extract was so flammable."



SLEEPY SMOKER —
Glowing cigarettes cause many home accidents. The bedroom is the deadliest place in the home for fires.

The ages and stories vary, but momentary carelessness or preoccupation frequently turns dinner preparation into a fire. The kitchen is the second most dangerous place. Twelve per cent of all home accidents and 26 percent of all home accident injuries happen in the kitchen. A large number of incidents involve fires, burns and scalds. Overturned pots, cooking fats and escaping steam are frequent causes.

HERE'S WHAT YOU CAN DO TO PREVENT FIRES AND BURNS.

- * Have an escape plan in case of fire during the night. Be sure everyone is out of the house, and call the fire department.

- * Never, never smoke in bed. Never toss a lighted cigarette away without completely breaking it in pieces. Check the contents of ashtrays before emptying them.

- * Always keep matches out of the reach of children. Never throw a match into a wastebasket or from an automobile. Never use matches to search in storage rooms — use a flashlight. Florida's open burning law prohibits the burning of trash and other materials around the home.

- * While cooking, turn pan handles away from the front of the stove. Use small, light-weight utensils and heavy potholders. Keep a fire extinguisher in the kitchen.

* Don't overheat cooking fats. If they should begin to blaze, use a large pan cover to smother the flaming grease. A grease fire can also be smothered with a handful of soda.

* Gasoline and flammable liquids can be dynamite inside your home. Today, more people are using gasoline for power mowers and boats and solvents for cleaning clothes, floors and paint brushes. Be careful in storing gasoline. Make sure the storage space is ventilated. A tiny spark, even one from the ringing of a doorbell, has been known to ignite a fire in a vapor-filled house.

* Be sure your chimney and/or stoves have been properly cleaned before lighting the heating units for the cooler months.

Babies and the Elderly in Hazardland

Young babies and elderly people are the most susceptible to accidents. The young are incapable of taking care of themselves. The elderly are frequently the victims of accidents because of poor judgement and balance; unstable limbs, weak eyesight, and ill-fitting dentures.

Children get into everything. They're curious, quick, always on the go. They poke, climb, test anything they can find. They're busy little explorers, learning about their world and nothing escapes them. They're children and they are precious.

The youngster is the most likely to smother by becoming entangled in bedclothes. Both children under four and the elderly are the most frequent victims of accidental swallowing, or inhalation, of objects or food which result in the obstruction of respiratory passages. A few workmen are suffocated each year in cave-ins during construction; children sometimes are suffocated in abandoned refrigerators.

Asleep or awake, children need to be guarded. A small child tosses, kicks, rolls a great deal and puts everything into his mouth. Because he is so active, he is prone to suffocation — either by bedclothes and plastic materials, or ingestion of small objects.

Parents and baby sitters must be aware of the problems and dangers surrounding children. Too frequently parents go about hiring

a baby sitter in a haphazard way. They fail to check carefully the sitter's credentials — or they select an “unknown” from the newspaper ads. Even if they have a dependable baby sitter, they may still be in trouble if they fail to discuss special instructions, neglect to explain the location of fire exits and first aid supplies, or go off in such haste they fail to tell the babysitter where they can be reached in an emergency.

One young couple, planning an evening on the town to celebrate an anniversary, called a young babysitter who had advertised in the newspaper. Although they were wary from past experiences, they were delighted when the sitter arrived on time and seemed capable and mature. She was an immediate hit with the children. After giving instructions, the couple went out the door. As they were about to drive away, the young sitter rushed out and asked in all earnestness, “If there is a fire, which one of the children do you want me to save first?” The couple changed their minds about going out for the evening.

One form of accident which occurs among the elderly, especially those who have poorly fitting dentures or have been drinking alcoholic beverages, is “cafe coronary.”



DOUBLE TROUBLE FOR GRANDMA — Steps without railing and a pet dog are hazards for this elderly woman. A tumble could bring serious injuries.

A middle-aged or elderly person is dining with his family or friends at a fashionable restaurant. He is partaking of filet mignon or broiled lobster. Suddenly he ceases to eat and talk. His companions are not alarmed, only perplexed. He collapses at the table. Attempts at resuscitation are made by the waiter and friends. A physician may be present who attempts to give first aid. An ambulance arrives and the person is rushed to the nearest hospital emergency room where he is dead on arrival.

His companions may have thought he had had a heart attack. He had all of the symptoms. But if they had checked his air passage, they would have found a piece of poorly chewed food blocking his windpipe. If they had removed it, their friend may have survived. The individual can do much to protect himself against a "cafe coronary." He should have properly fitted dentures and observe good table manners.

HERE'S WHAT YOU CAN DO TO PROTECT BABY AGAINST SUFFOCATION:

- * Never leave the baby alone during his bath. It takes only a few moments and a few inches of water for him to drown.

- * Never leave the baby alone on a table, bathinette, or dressing table. One quick turn and he is on the floor. When leaving him on a wide place, such as a bed, place something, such as heavy pillows, in front of him so he will not roll off.

- * When putting a baby to bed, be sure to see that the bed sheet is tucked firmly under the mattress and the top sheet is loose enough to allow free movement. Do not put a pillow in his crib. Remove any small object he can put into his mouth. Before leaving the baby, put the crib side up to keep him in. Check frequently while he is asleep.

Poisonings - They Can Haunt You

Exploring children or confused adults are apt to be victims of the poisoning hazard.

One nine-month-old child, attracted by a bottle of bright red furniture polish that was left with the cap off, tipped the bottle over and started splashing his hands in the pretty liquid mess. Then he put his hands in his mouth. The parents rushed the baby to a Florida

Poison Control Center, which was operated by the hospital under the sponsorship of the Division of Health, the Florida Pediatric Society and the Florida Chapter of the American Academy of Pediatrics. Fortunately, the baby recovered.

Another Florida mother poured a liquid roach killer into a plastic baby's bottle with a nipple, intending to squirt the poison into corners to kill insects. Her two-year-old son died when he mistook the white liquid for milk and drank some of it.

There were less than 100 deaths from poisonings in Florida in 1970; but there were over 5,000 cases of poisonings seen in hospitals. Approximately one-third of these were children under four years of age. Over 1,000 young people were seen at Poison Control Centers and hospitals because of attempted suicides and overdoses or misuse of drugs.

Children under two are the most frequently poisoned. This is because of the children's curiosity and improperly stored cleaning compounds, medicines and pesticides; and poor supervision of children.

As a child toddles around the house, he is likely to find a number of potentially poisonous products. He has to be watched that he doesn't sample detergents, polishes and disinfectants.

The child cannot read labels to know that the ingredients are poisonous; he doesn't understand the dangers of drinking or eating unknown substances. Poisonings occur most often in the disorganized household, the "off-guard type of home." Grandmother's house may be dangerous because she doesn't lock up cleaning compounds, furniture polish and her medicines before the grandchildren come to visit.

Many adults are treated at Poison Control Centers and hospitals because they were too sleepy or ill to read the labels on the medicine bottles and took an overdose, or the wrong kind of medicine. Elderly people take overdoses because of senility or poor eyesight. Mistakes in dosage, sequence, timing and omissions are frequent causes of poisoning cases.

Over one thousand persons ended their own lives in Florida in 1970. Many of these were from taking overdoses of poisons or medicine.

HE'S CURIOUS -

Children get into everything. To this child, a can of lighter fluid is a delightful plaything. However, if he opens it, he could be poisoned.



In addition to the ingesting poisonous substances, people are frequently victims of poisonous gases and vapors. Aged persons suffer a loss of acuity of smell and are thus more exposed to dangers from leaking gas or equipment, unignited gas outlets, or gas burners put out by boiled-over pots and pans. Cooler weather requires the use of heating units in homes. Tragic accidents, in which whole families are wiped out, occur because of poor ventilation where portable stoves or gas heaters are used.

HERE'S WHAT YOU CAN DO TO PREVENT POISONINGS:

- * Keep medicine out of the reach of children. Parents should read labels carefully before giving medicines; older children should not be allowed to give medicine to younger ones. One person should administer the giving of a child's medicine.

- * Keep bleaches, cleaners, waxes and household cleaning materials in locked cabinets. Products for cleaning or those containing poison should not be stored near food.

- * Periodically clean out your medicine cabinet and throw away and destroy medicines that are no longer used. Never give children old medicine bottles to play with.

- * When taking medicine, read the whole label on the bottle — twice before taking the medicine and once afterward — to make sure you know what you took. Do not store poisons in medicine chest.

* Never take medicine in the dark. Never put two kinds of medicine together on your bedside table nor mix pills in one box.

* Check gas or oil-fueled burners often. Make sure they are burning properly and that the fuel is not escaping. See that the pilot light is lit.

Make sure your stoves, furnaces and heaters are working properly. Have them cleaned periodically. Make sure the heaters are properly vented to the outside and the room has proper ventilation.

Firearms - They Can be Loaded

Guns are made for hunting or protection. But more firearm accidents occur in the home than in the woods. According to statistics, you may be safer in the fields and forests than in the home where a gun is left loaded and available.

Most people who are injured or killed by firearms are picked off by themselves, or by their best friends. How often have you heard about a group of young boys playing in a home. One finds a rifle in a closet, takes it out to examine it, and before anyone realizes — one of the group is dead.

A small child found a hand pistol under the seat of his father's car, and before anyone could do anything, unwittingly shot and killed his father.

A man snatched his pistol from a bedside table and killed his wife when, half asleep, he saw her shadow cross the window as she got up. He thought it was a prowler.

SAFETY RULES FOR FIREARMS IN THE HOME ARE:

- * Keep firearms where children cannot get to them.
- * Treat guns with respect and always be careful where you point the muzzle.
- * Guns carried into the home should be unloaded. Keep the safety on until ready to fire, and you are positive of the target.
- * Load your gun only when in the field or ready on the range. Never climb over obstacles, such as fences, with a loaded gun.
- * Unload your gun when it is not in use and leave the action (movable parts) open. Store guns and ammunition separately.

* Keep your equipment in excellent condition and be sure you have the proper ammunition for the gun.

* The basic rule — NEVER POINT A GUN AT ANYTHING YOU DO NOT WANT TO KILL.

The Hazards Under the Christmas Tree

Christmas is the happiest time of the year for children. However, the joys of the Christmas season can be turned to sadness should a child be harmed by a toy that came apart or was poorly designed.

Each year thousands of new toys are introduced to the American public by native and foreign toy manufacturers. Many of these toys are rushed into the stores without proper testing to see if they will stand up to the abuse a young child can give a toy, whether it will come apart, or if the toys themselves are dangerous.

You can do your part in helping your children to have a Merry Christmas season by being careful in what you buy. As a guideline for purchasing Christmas toys, avoid toys that in normal use or when subjected to reasonable damage or abuse may present personal risk, injury or illness.

The Federal Food and Drug Administration has issued restrictions on toys that are offered for sale. The laws of Florida (Chapter 501, Florida Statutes) follow much the same features of the federal rules.

Toys that contain certain potentially harmful features are not allowed in Florida stores or must be labeled as being "hazardous."

These include:

* Any toy rattle that contains, either internally or externally, any rigid wires, sharp protrusions, or loose small objects that have the potential for causing lacerations, puncture wound injuries, or by aspiration or ingestion or cause other injuries.

* Any toy that has noisemaking components or attachments as part of the operating features of the toy that are capable of being removed by a child.

* Any doll, stuffed animal, or similar toy that has internal or external components that can cause injury, such as a teddy bear whose eyes can be pulled off and swallowed.

* Any sharp-pointed toy, such as lawn darts, intended for outdoor use. These may be sold in sporting good stores but not for use by children.

* Any caps (paper or plastic) which are intended for use with toy guns that are capable of causing a noise loud enough to harm a child's hearing.

* Any electrical toys that can give electrical shock or electrocution; chemical sets that can harm children too young for them or that can give off thermal or heat energy capable of causing burns or fires.

During the first nine months of 1971, the Division of Health, in cooperation with the county health departments and the Federal Food and Drug Administration, recalled some 60 different toys, dishes and speciality foods from the shelves of Florida retail stores.

The items included balloon squawkers, lawn darts, stuffed dolls, teethingers, squeeze toys, archery sets, baby rattles, stuffed toy rabbits, toy musical instruments, candy "love" beads, pottery, earthen ware, coffee mugs and china.

The toys were removed from the market place because they were made in such hazardous ways that children could take them apart and swallow small pieces, were contaminated with bacteria, or could shatter or fragment. Merchants were asked to remove dishes, china and earthen ware because they were painted with lead paints that could be leached off with acid-containing foods. Such speciality foods as frozen swordfish and red snapper were withdrawn from the market place because of contamination by mercury.

Additional Hazards at Christmas

Christmas is not the usual time to discuss ghosts and goblins, but there are other hazards that haunt your house during the holiday season. These lurk in the most beautifully decorated Christmas tree, in the pretty wrappings from gifts and toys.

Combustible materials in the form of gift wrappings and decorations are everywhere. Many more flames from fireplaces and candles are present. Equipment that has lain idle all year suddenly is required to serve again.



CHRISTMAS HAZARDS
— The beautiful decorations of the Yuletide season should be checked before they are placed on the Christmas tree.

Your Christmas tree should not be purchased until just prior to trimming. But safe decorations can be planned ahead of time. The skirt — or decorations — under the tree, the hanging ornaments and other trimming materials should be substances that will not burn. The electrical light sets should be checked for frayed insulation, loose connections, or broken plugs or light sockets. If you need new light sets, make sure they carry the UL (Underwriters' Laboratory) label. Be sure the tree lights and other electrical decorations are turned off before leaving the house or retiring.

Place your Christmas tree well away from radiators and fireplaces and out of the flow of traffic in the house so that it will not be upset. Set the tree in a container of water and replace the water daily. Remove the tree to the outdoors as soon as possible.

Do not place electrical toys under a tree and never string electric lights on a metal tree.

Haunted - The Little Glass House

Panoramic views are characteristics of much of today's residential and commercial architecture. It's no wonder. People who live in Florida find that they can enjoy the best of two worlds — outside beauty and indoor comfort — by constructing their homes and office

buildings, governmental and business edifices with glass walls and invisible sliding glass doors.

While glass walls and doors bring beauty of the outdoors into the home, they also can bring tragedy. People frequently walk into their sliding glass doors. Some are lucky, others get off with a skin cut and a good scare. About 100,000 Americans are injured each year by glass doors, and one out of seven persons is hospitalized.

Most people think glass doors are as thick as that used in automobiles. But it is not necessarily so. The majority of glass used in homes is usually about 3/16 inch thick — and has little break resistance.

A pilot study on glass door injuries conducted several years ago by the old State Board of Health (now Division of Health) and the Dade County Department of Public Health revealed some interesting facts.

People who walked into glass doors were pre-occupied with their thoughts, talking to some one, or not watching where they were going. Hurrying was the main cause of most accidents. In most cases the person was accustomed to the glass door and knew it was there. Perhaps he had even made several trips through the doorway — and then — someone closed it. Most accidents occurred in broad daylight and when the door did not give back a reflection.

BRINGING THE OUT-DOORS INSIDE — A safety bar, used as a barrier on this glass wall, keeps people from trying to walk through the invisible glass.



The shattering problem is not limited to sliding glass doors. It also involves shower doors and tub enclosures, storm doors and fixed glass panels.

HERE'S WHAT YOU CAN DO TO PROTECT YOU AND YOUR LOVED ONES FROM SHATTERING GLASS.

- * The best defense is safety glass in sliding glass doors and shower and tub enclosures.

- * Use safety bars, mounted at door handle level on both sides of swinging glass doors, or on glass doors that slide inside a fixed panel.

- * Use planters (with plants about three feet tall), decals or tapes on fixed glass panels.

- * Children should be trained not to play near glass doors.

- * Scatter rugs, toys and other articles, which may cause a person to trip, slide or fall should not be placed or left near glass doors. Doorways should be checked frequently to be sure they remain clear of obstacles.

- * Keep bathroom floor dry and use skid-proof mats on the bathroom floor.

- * Use suction-type bath mats or non-slip adhesive strips for solid footing in bathtubs or showers. Install wall-mounted grab bars or hand rails to prevent slipping and falling against the shower door or tub enclosure.

Electricity - The Slave May be a Killer

The ancient caveman feared electricity. He only knew it as lightning that could shatter a tree and cause a forest fire, or as a flash in the sky. Today man has harnessed this awesome energy to work for him. It can cool, heat, and light his house. He has invented machinery that cooks and cools his food, cuts his wood, runs toys, lights his Christmas tree. There are dozens of ways that man has harnessed this giant slave called Electricity.

But uncontrolled electricity can injure, burn or kill. Electrical cords with worn, crumbled or cracked insulation are dangerous. They should be replaced. Extension wires should never be placed over hot

pipes, radiators or other hot objects. Excessive heat may damage the cords and melt the insulation, or make it dry and brittle.

Wall outlets, not extension cords, should be used for connecting appliances. However, too many appliances will overload an outlet or circuit and blow a fuse or start a fire.

If you feel a tingle or slight shock when handling an appliance or switch, it means that the appliance should be inspected for loose wires or poor insulation. Turn off appliances when you are plugging them into an electrical outlet or disconnecting them. Unplug appliances when they are not in use to avoid danger of fire, electrical shock, or injury by moving parts.

Electrical equipment should not be handled with wet hands, or when you are standing on damp or wet surfaces. Avoid touching an appliance and a grounding source, such as a pipe, radiator, faucet, or sink, at the same time. Common house currents can be deadly.

Hazards Surrounding the Home

Not all of the hazards that haunt a house are inside. The swimming pool, lawn equipment, and outdoor electrical equipment are sources of disabling injuries or death.

Swimming pools have attraction for youngsters and many small children have been victims of drownings. The lack of supervision and unfenced pools are the most common causes of accidental drowning among children.

Because children frequently fall from backyard swing sets, slides and teeter-totters, they should be taught proper use of such equipment. Play equipment should be the right size for the children. All such playthings should be assembled according to the directions of the manufacturer. The equipment should be checked often for stability, excessive wear, loss of parts and rust. It should be placed on level ground, and away from fences, hedges or buildings that would force the children to walk or play too close to the moving swings.

Accidental injuries from lawn mowers are increasing annually. They happen to both individuals using the lawn mower and bystanders; to experienced operators, as well as beginners. Injuries take the form of severe bruises, torn ligaments, punctures, fractures, amputations and sometimes eye injuries.

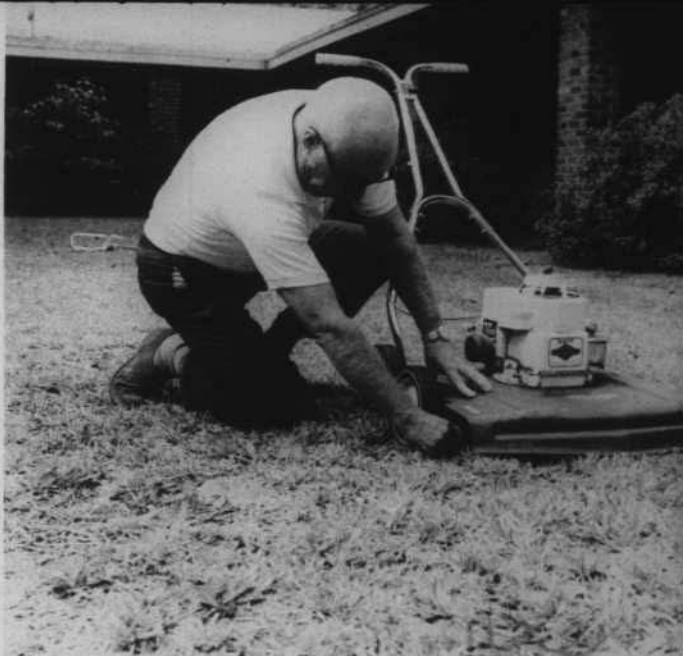
The rotary mower is most often responsible for injuries. Equipped with a sharp, flat cutting blade that rotates horizontally on a vertical shaft, the machine can throw an object up to 300 feet a second — so fast that the person doesn't know what has hit him. A blade or portion of a blade, may become detached and act as a missile. A great many people are injured by attempting to adjust the machine while it is still running. Most accidents to operators of rotary mowers are the result of placing the foot or hand under the cutting area beneath the machine while the motor is on and the blade is moving.

HERE'S WHAT YOU CAN DO TO PROTECT YOURSELF FROM ROTARY MOWERS.

- * Make sure the lawn is clear of sticks, stones, wires and debris.
- * Never add fuel to a running engine, or while the engine is hot.
- * Keep children and pets a safe distance away, or completely out of the area.
- * Stop the engine whenever you leave the mower — even for a moment.
- * Always properly maintain the mower, frequently checking all fasteners, guards and parts.
- * Stop the engine before pushing the mower across walks, drives or roads.
- * Do not allow minors or neighbors to operate your mower without instruction.
- * Be careful of your footing on slopes or wet grass.
- * Never plug in an electric mower in the rain or when the grass is wet.
- * Always wear heavy shoes when operating a rotary lawn mower.
- * Never leave a running mower unattended.

Well-kept lawns with neatly trimmed hedges improve the appearance of homes and neighborhoods. The electrically-powered hedge trimmer reduces the tiresome, time-consuming chore of trimming hedges, but this seemingly simple job exposes the operator

PEOPLE WILL DO THIS!
— Accidental injuries from rotary lawn mowers are increasing annually. Many injuries occur because people thoughtlessly place their foot or hand under the machine while the motor is running.



of electric hedge trimmers to certain hazards and possible disabling injuries.

Most injuries are lacerations which occur when the operator removes one hand from the trimmer to hold branches; direct branches into the blade, catch clippings with his free hand, or remove branches from a jammed trimmer without cutting off the power.

HERE'S WHAT YOU CAN DO TO PREVENT YOURSELF FROM BEING CLIPPED:

- * Keep electric cords away from the cutting blade.
- * Never use the hedge trimmer in wet or damp shrubs — following a rain or heavy dew.
- * Keep free of close, tight places and avoid getting into a cramped and/or tiring position while trimming.
- * Wear rubber-soled shoes, keep your eyes on your work, and keep your hands away from the cutting blade.

Public Health Prevents Accidents

As we have said, accidents in the home are a major health problem. Home accidents take approximately one thousand lives annually in Florida; and many thousands of persons are permanently disabled. Because the Division of Health of the Florida Department of Health and Rehabilitative Services and county health departments

have a responsibility to protect the people's health, they have promoted safety over the years.

The Division of Health and county health departments, in cooperation with the participating hospitals and pediatric societies, instituted a number of years ago the Poison Control Centers in 32 Florida cities.

These centers maintain files containing

- * The trade names of products which have been previously involved in cases of poisonings;
- * the chemical ingredients; and
- * the antidote or treatment for that particular poison.

Should a physician contact a Poison Control Center and report that a child has swallowed L-----, a cleaning compound, and what is recommended as an antidote. The physician can start treatment without delay.

Public health nurses from county health departments provide much of the health education in the community. When they visit a home, they can see at a glance where home accidents can be avoided. The public health nurse is trained to see that bottle of aspirin tablets lying within reach of children, an electrical cord too near a baby's crib, a child playing with a box of matches, and gently remind the mother of the dangerous situations.



REALLY! — A public health nurse appears startled by a tale of woe told by a mother. Public health nurses, following up reported poisoning cases, are able to point out hazards in the home and thus prevent future accidents.

REMOVING HAZARDOUS SUBSTANCES — A county health department sanitarian checks the shelves of a grocery store for hazardous substances and improper labeling of products. Over 60 different items were removed from Florida retail stores in early 1971 by the Division of Health and county health departments.



Through their daily contact with families in their homes, in clinics and well-child conferences, public health nurses can assist parents to understand their children's growth and development. By showing the parents the physical, intellectual and emotional development of the child, they can teach them how to protect the child from his own curiosity.

When public health nurses are in the homes of elderly people, they can point out potential hazards — poor lighting, obstructions on the floor, dangerous living habits. They can show elderly people how to label their medicines so as to avoid overdoses or accidental poisoning.

Public health nurses can bring about corrections of existing and/or potential hazards — whether they may be to humans or the environment. And they can motivate people to develop safe habits which will prevent accidental injuries to themselves and others.

County health department sanitarians are involved in home accident control during their routine inspections of private premises. They often call the homeowner's attention to potential hazards on his property. Sanitarians also check for safety hazards at public and private schools, child care centers, public swimming pools, hospitals and nursing homes, and all of the other establishments and facilities which are regulated by the Division of Health.

A law which became effective July 1, 1970, gave the Department of Health and Rehabilitative Services the authority to protect the

citizens of Florida from hazardous products and substances. The program was delegated in turn to the Division of Health.

Through the Division of Health's sanitation consultants and county health department sanitarians, the health agencies have secured proper labeling of some dangerous products, stopped the sale of a number of hazardous substances, and carried on laboratory research in the testing of products, and corrected chemical formulas — especially in the field of cleaning compounds.

In addition, through movie films and pamphlets, the Division of Health promotes home safety and accident prevention.

How is Your Housekeeping?

Safety in the home can be promoted and advised by public health authorities, public and private safety officers, and safety councils, but the real responsibility of preventing home accidents is yours — the reader's.

Home safety is a state of mind — an attitude — a way of life.

If you keep unsafe ladders in your home,

If you place chairs in your house so that people have to walk around them,

If you allow your children to scatter toys throughout the house,

If a flight of stairs — or just one step — is unlighted or has no handrail,

If you leave medicine or hazardous substances where children can get to them,

If you fail to maintain safe lawn mowing equipment or fail to fence that swimming pool,

If you buy unsafe toys for your children and fail to check those Christmas tree lights before putting them on the tree, someone will be hurt, poisoned, killed or drowned. Your house may be destroyed or damaged. Your housekeeping will show how much you love your family, friends and yourself.

You need not believe in ghosts, goblins or witches, but you should believe in the hazards that haunt your home. They could kill you — DEAD.

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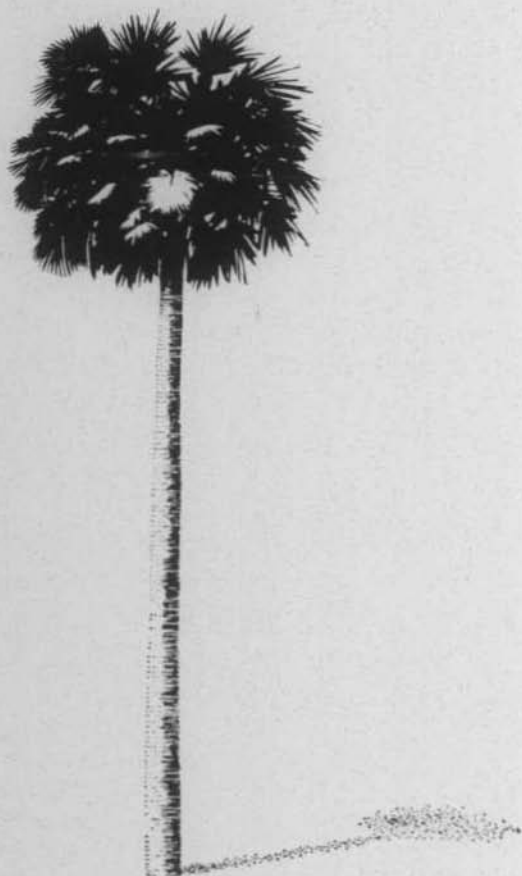
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